PLASMA DISPLAY TV

Chassis : F45A(N_HD)_Pyrope
Model : PN42A450P1DXZC

SERVICE Manual

PLASMA DISPLAY TV

PN42A450P1D

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2. Product Specification
3. Disassembly & Reassembly
4. Troubleshooting
5. Exploded View & Part List
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Refer to the service manual in the GSPN (see the rear cover) for the more information.

GSPN (Global Service Partner Network)

Area	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

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1. Precaution

To avoid possible damage, electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes between the PDP module and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).

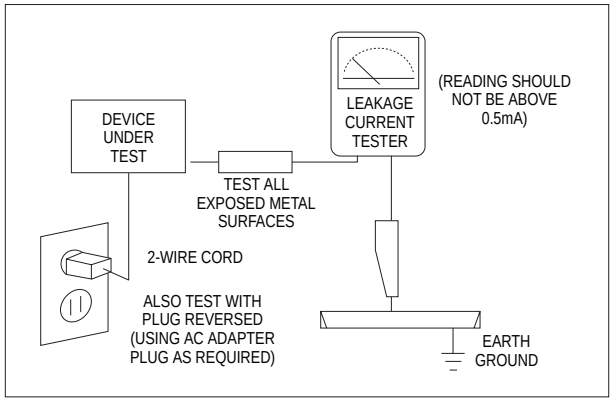

DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Fig. 1-1 AC Leakage Test

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earth end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earth ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new immediately. When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚠ ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the "Safety Instruction" in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose. The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1 MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead. The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so protect yourself by wearing gloves during the repair.

11. Due to the nature of plasma display panels, partial after-images may appear if a still picture is displayed on the screen for a long period of time.
    This is caused by brightness deterioration due to the storage effect of the panel, and to prevent this from happening, we recommend that the brightness and contrast are reduced.
    (e.g.) Contrast: 25, Brightness: 50

1-3 Static Electricity Precautions

1. Some semi-conductive ("solid state") devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or assemblies. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD assembly and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals.
   Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit assembly.

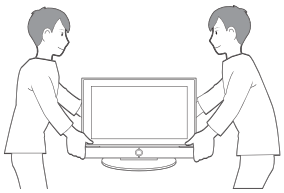
9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.



2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.

7. When connecting the RF antenna, check for a DTV receiving system and install a separate DTV reception antenna for areas with no DTV signal.

8. When installing the product, leave enough space (4") between the product and the wall for ventilation purposes.
   A rise in temperature within the product may cause fire.

9. When moving a PDP with removable speakers, detach the speakers first before moving the main body.
   Moving the PDP main body without separating the speakers may cause the speakers to detach, possibly causing damage or injury.

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2. Product Specification

2-1 Product Specification

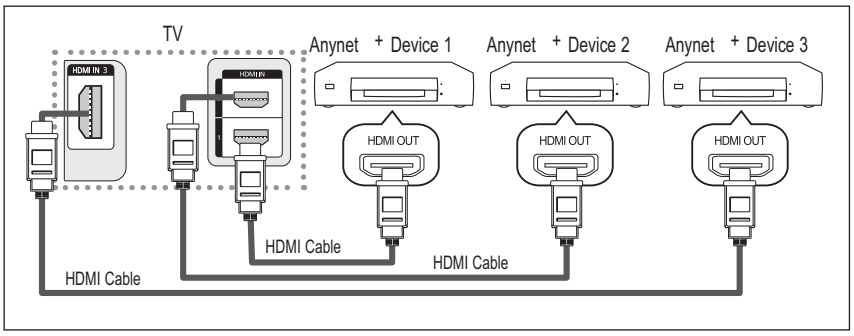
Features			
Block	Specification	Major IC	Remark
RF	Digital/Analog (DTV Built In)	NTSC/VSB/QAM Tuner KS1411	
PDP Module	Samsung SDI W3 Module	42"HD/50"HD	New Module
Power	Samsung/Dong-yang electro mechanics SMPS		
Video	NTSC 3.58, ATSC HDMI DNIe(FBE3) Component, PC	MSD2248	
Sound	SRS TruSuround XT, Dolby Digital	MSD2248, STA335W	Optical Output
Cabinet	P450 Design		

Specification		
Model	PN42A450P1D	PN50A450P1D
Screen Size	42 Inches (16:9)	50 Inches (16:9)
Dimensions (WxHxD)	41.5 x 26.3 x 3.7 inches (without stand) 41.5 x 28.5 x 12.4 inches (with stand)	48.4 x 29.8 x 3.7 inches (without stand) 48.4 x 32.0 x 12.4 inches (with stand)
Weight	59.31 lbs (without stand) 67.24 lbs (with stand)	75.41 lbs without stand 81.57 lbs with stand
PC Resolution	1024 x 768 @ 75Hz	1360 x 768 @ 60Hz
Power consumption	330W	470W
Voltage	AC 100~240V, 60Hz	
ANTENNA input	ANT AIR IN or CABLE IN ※ 75Ω unbalanced	
VIDEO input	AV1, AV2 S-VIDEO1 COMPONENT1 - 480i/480p/720p/1080i/1080p COMPONENT2 - 480i/480p/720p/1080i/1080p PC HDMI1 : 480p/720p/1080i/1080p HDMI2(DVI Compatible) - 480p/720p/1080i/1080p HDMI3(SIDE AV) - 480p/720p/1080i/1080p 480i is not contained in HDMI EDID data. However, it can be displayed.	
AUDIO input	AV1, AV2 S-VIDEO COMPONENT1 - 480i/480p/720p/1080i/1080p COMPONENT2 - 480i/480p/720p/1080i/1080p PC DVI	
Audio Output	AUDIO (L/R)	
Speaker Output	10W + 10W	
New Features	Anynet+	

■ New Features explanation

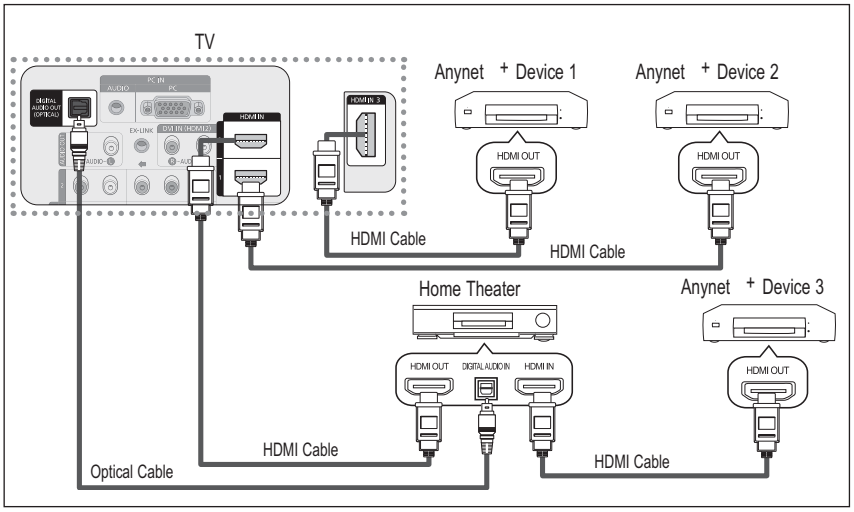
- Anynet+ : Anynet+ is an AV network system that enables you to control all connected Samsung AV devices with your Samsung TV's remote.

To directly connect to TV



Connect the [HDMI 1], [HDMI 2] or [HDMI 3] jack on the TV and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.

To connect to Home Theater



1. Connect the [HDMI 1], [HDMI 2] or [HDMI 3] jack on the TV and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.
2. Connect the HDMI IN jack of the home theater and the HDMI OUT jack of the corresponding Anynet + device using the HDMI cable.

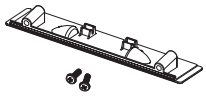
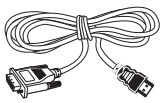
→ Connect the Optical cable between [Digital Audio Out (Optical)] on your TV and Digital Audio Input on the Home Theater.
→ Connect only one Home Theater.
→ You can listen to 5.1 channel sound through the home theater's speakers. Otherwise, you can only listen to 2 channel stereo sound in other cases. Make sure to connect the Digital Audio IN (Optical) of the home theater and the TV correctly to listen to TV sound through the home theater. However, you cannot listen to sound from the BD recorder that is sent to the home theater via the TV in 5.1 channel sound because the TV outputs only 2 channel stereo sound. Please see the manual for the home theater.
→ You can connect an Anynet + device using the HDMI cable. Some HDMI cables may not support Anynet + functions.
→ Anynet + works when the AV device supporting Anynet + is in the Standby or On status.
→ Anynet + supports up to 12 AV devices in total. Note that you can connect up to 3 devices of the same type.

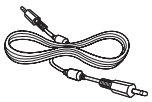
2-2 Specifications Analysis

※ ○: application, X: non-application

Model		PN42A450P1DXZA	PN50A450P1DXZA	HP-T4254 (Lily-42HD)
Design				
Basic	Display Type	PDP TV	PDP TV	PDP TV
	Built-In Tuner	○	○	○
	Resolution	**1024 x 768**	**1365 x 768**	1024 x 768
	PDP Module	**W3**	**W3**	W2A
	Screen Size	42"	50"	42"
	Picture ratio	16 : 9	16 : 9	16 : 9
	Dimensions (WxHxD)	**41.5 x 28.5 x 12.4 inches**	**48.4 x 32.0 x 12.4 inches**	41.5 x 29.9 x 12.4 inches
	Weight	**67.24 lbs / 30.5 kg**	**81.57 lbs / 37 kg**	73.2 lbs / 33.2kg
Picture	Brightness	**1,500 Cd/m2**	**1,300 Cd/m2**	1,500 Cd/m2
	Contrast Ratio	10000:1	10000:1	10000:1
	Picture Enhacer	**FBE3**	**FBE3**	FBE2
	Comb Filter	○	○	○
Audio	Equalizer	5 Band	5 Band	5 Band
	Auto Volume Control	○	○	○
	Surround Sound	SRS TruSurround XT	SRS TruSurround XT	SRS TruSurround XT
	Speaker Output	10W + 10W	10W + 10W	10W + 10W
Features	PIP	**X**	**X**	○
	Double Window	**X**	**X**	○
	Caption	○	○	○
	Still Image	**X**	**X**	○
	EPG	○	○	○
	My Color Control	○	○	○
	Energy Saving	○	○	○
	Anynet	○	○	○
Connections	Antenna	1(Cable or Air)	1(Cable or Air)	2 (Cable/Air)
	AV Input	2	2	2
	S-Video	**1**	**1**	2
	Component	2	2	2
	PC(D-SUB)	1	1	1
	DVI	X	X	X
	HDMI	3	3	3
	Optical	1	1	1
ETC	Speaker/Stand	Built-in Speaker	Built-in Speaker	Built-in Speaker

2-3 Accessories

Accessories		Item	Item code	Remark
Supplied Accessories		Remote Control Batteries	BN59-00687A 4301-000103	Samsung Service center
		Power Cord	3903-000144	
		Owner's Instructions	BN68-01399B	
		Warranty Card Registration Card Safety Guide Manual	- - AA68-03242L	
		Cloth-Clean	BN63-01798A	
		Ferrite Core for Power Cord	3301-001305	
		Cover-Bottom Screws (2ea)	BN63-03055A 6003-001621	
Accessories that can be purchased additionally		S-VIDEO Cable 47.244 inches	BN39-00149A	Electronics Store/ Internal shopping mall
		HDMI Cable 118.11 inches	BN39-00641A	
		HDMI/DVI cable 118.11 inches	BN39-00643A	
		Component Cables (RCA) 59.055 inches	BN39-00279A	

Accessories		Item	Item code	Remark
Accessories that can be purchased additionally		Optical Cable	None	Electronics Store/ Internal shopping mall
		PC Cable 72.047 inches	BN39-00115A	
		PC Audio Cable 78.740 inches	BN39-00061B	
		Antenna Cable 118.11 inches	BN39-00333A	

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3. Disassembly & Reassembly

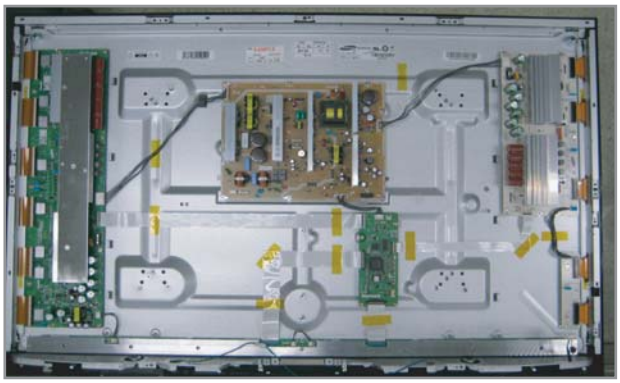
3-1 Overall Disassembly & Reassembly

⚠ Notice

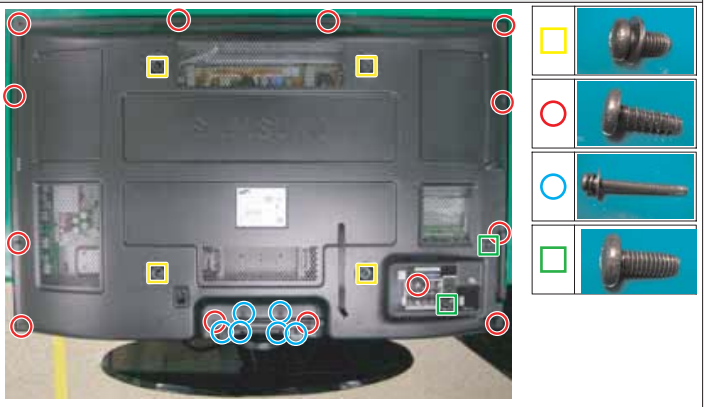
- Be sure to separate the power cord before disassembling the unit.
- Discharge the capacitors first when separating PCB's with high capacity capacitors such as SMPS, X Main Board, Y Main Board, etc. (A spark may be generated by the electric charge, and there is danger of electronic shock.)
- Check that the cables are properly connected referring to the circuit diagram when disassembling or assembling the unit taking care not to damage the cables.
- Take care not to scratch the Glass Filter in the front.
- Assemble the boards in the reverse order of the disassembly.
- The plasma must be layed down on a flat padded surface for disassembly and reassembly.

<42">

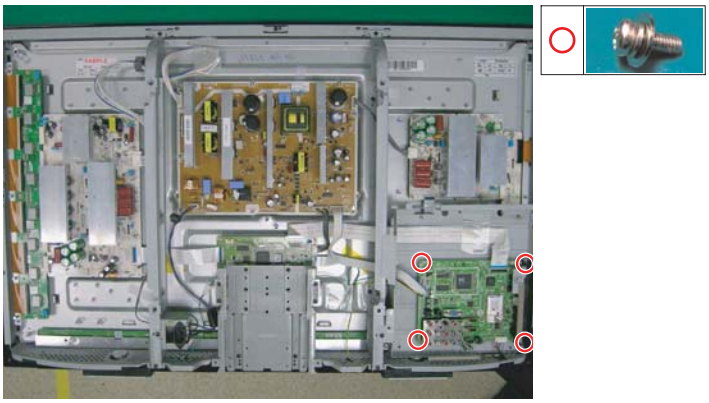
<50">



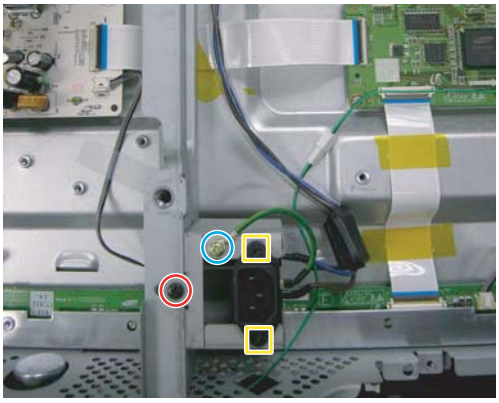
3-1-1 Separation of ASSY COVER P-REAR

Part Name	Description	Description Photo
Cover Rear	① Remove 4 screws. (□) : M8,L16,ZPC(BLK),SWRCH18A,WP ② Remove 13 screws. (○) : BH,+,B,M4,L3,ZPC(BLK) ③ Remove 6 screws. (○) : PH,+,WSP,S,M4,L35,ZPC(BLK) ④ Remove the 2 machine screws. (□) : BH,+,S,M4,L10,ZPC(BLK) ⑤ Remove the rear cover. ⚠: Please lay the PDP unit face down on a soft surface when removing the stand.	

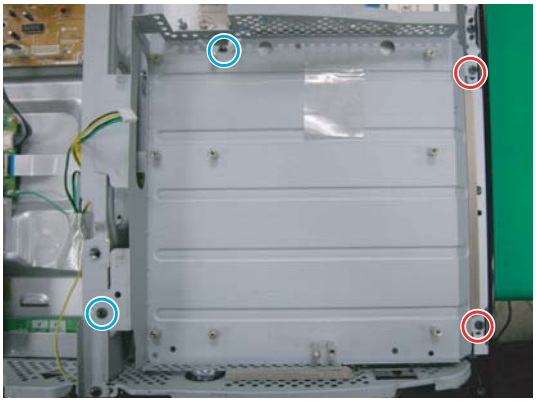
3-1-2 Separation of ASSY PCB MISC-MAIN

Part Name	Description	Description Photo
Main Board	① Detach all connectors from the Main Board. ② Remove 4 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the Main Board. ▶ The photo is for 42". 50" is very similiar with 42".	

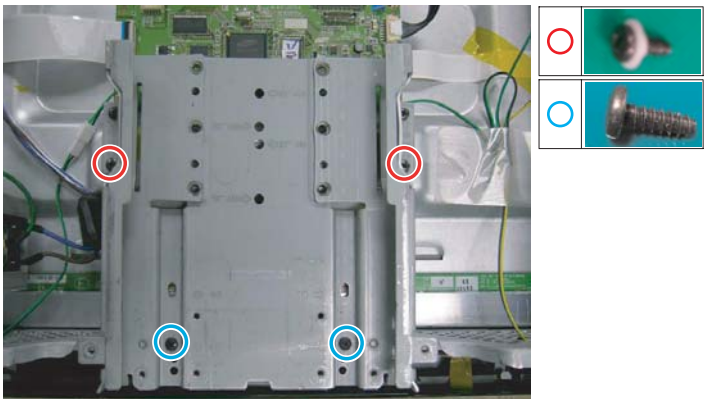
3-1-3 Separation of FILTER-EMI AC LINE

Part Name	Description	Description Photo
FILTER-EMI AC LINE	① Detach connector from SMPS. ② Remove 1 screws. (○) : BH,+,S,M4,L10,ZPC(BLK) ③ Remove 2 screw. (□) : PH,+,WWP,M3,L8,NI PLT ④ Remove 1 screws.(○) : BH,+,S,M4,L10,ZPC(BLK) ⑤ Separate FILTER-EMI AC LINE from bracket.	

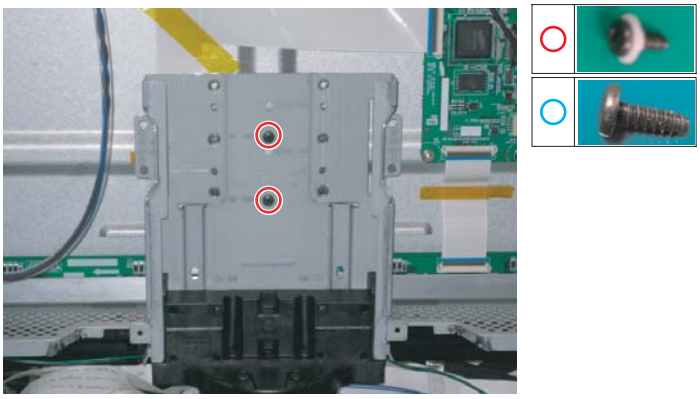
3-1-4 Separation of BRACKET-PCB

Part Name	Description	Description Photo
Bracket PCB	① Remove 2 screw.(○) : BH,+,B,M4,L3,ZPC(BLK) ② Remove 2 screw.(○) : BH,+,S,M4,L10,ZPC(BLK) ③ Remove the BRACKET-PCB.	

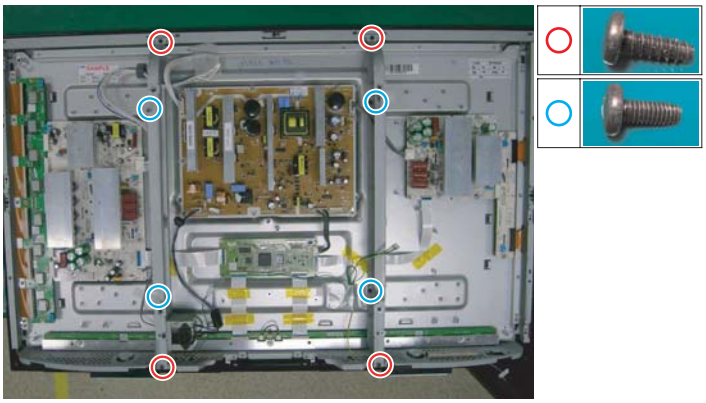
3-1-5 Separation of ASSY BRACKET 42"

Part Name	Description	Description Photo
Bracket	① Remove 2 screws. (◯) : BH,+,PT,S Tite,M4,L10,ZPC(BLK) ② Remove 2 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ③ Remove Bracket.	

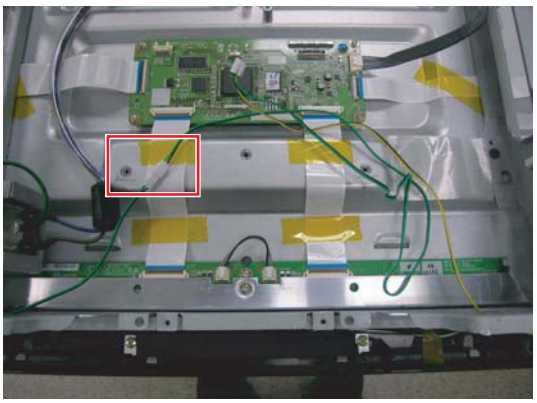
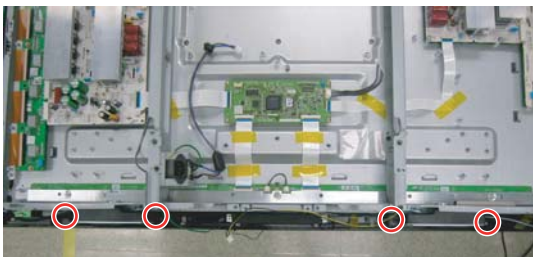
3-1-6 Separation of ASSY BRACKET 50"

Part Name	Description	Description Photo
Bracket	① Remove 2 screws. (◯) : BH,+,PT,S Tite,M4,L10,ZPC(BLK) ② Remove Bracket.	

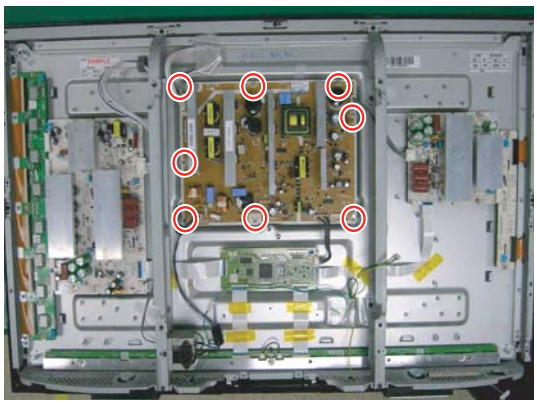
3-1-7 Separation of ASSY BRACKET P-WALL

Part Name	Description	Description Photo
42" Wall Bracket	① Remove 4 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove 4 screws. (◯) : BH,+,S,M4,L10,ZPC(BLK) ③ Remove Wall Bracket. ⚠: Please lay the PDP panel face down on a soft surface when separating front cover.	

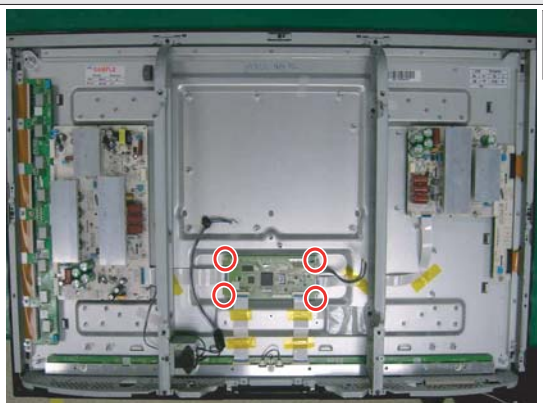
3-1-8 Separation of ASSY SPEAKER P

Part Name	Description	Description Photo
Speaker	① Disconnect left speaker cable from right speaker cable. ② Remove 4 screws.(◯) : BH,+,WP,B,M4.0,L3,ZPC(BLK), SWRCH18A ③ Remove the Speaker. ▶ The photo is for 42". 50" is very similiar with 42".	 

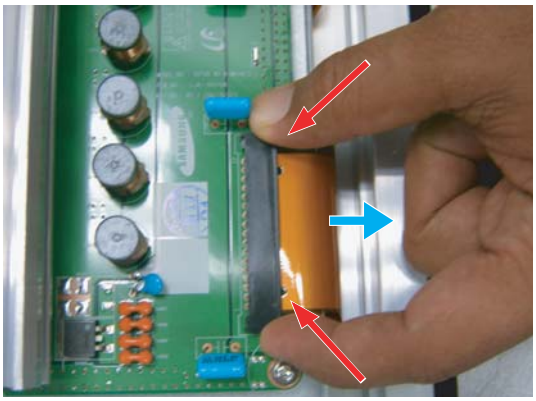
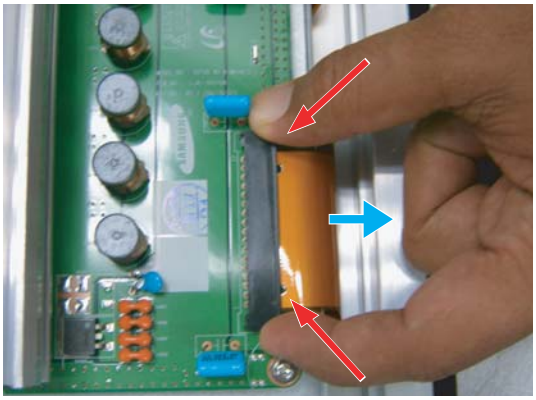
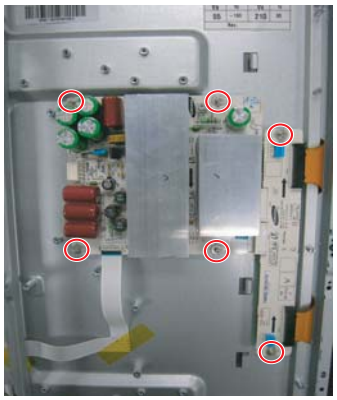
3-1-9 Separation of SMPS-PDP TV

Part Name	Description	Description Photo
SMPS	① Detach all connectors from the SMPS. ② Remove 8 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the SMPS. ⚠: Wear gloves when handling the power board as there may be some remaining electrical charge in the capacitor. Specifically, avoid touching any part of the capacitor.	

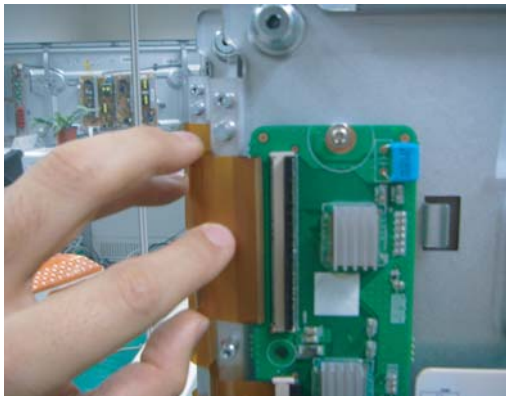
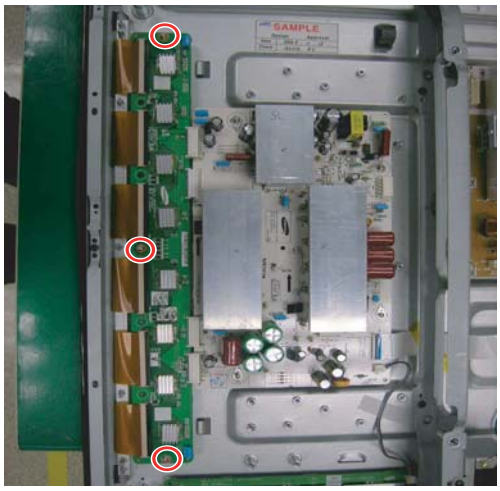
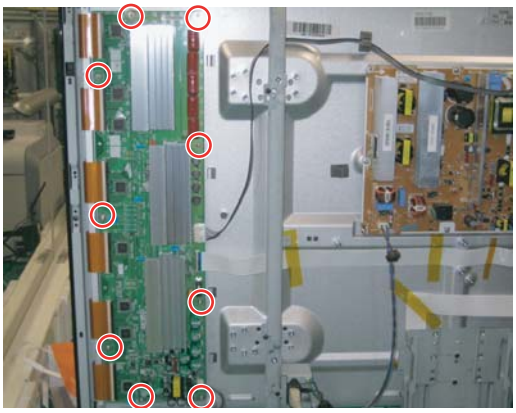
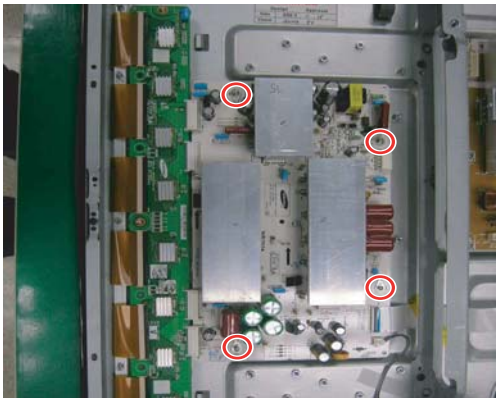
3-1-10 Separation of ASSY PDP MODULE P-LOGIC MAIN BOARD

Part Name	Description	Description Photo
Logic Board	① Detach all connectors from the Logic Main Board. ② Remove 4 screws. : WSP,PH,+,M3,L8,NI PLT ③ Remove the Logic Main Board.	

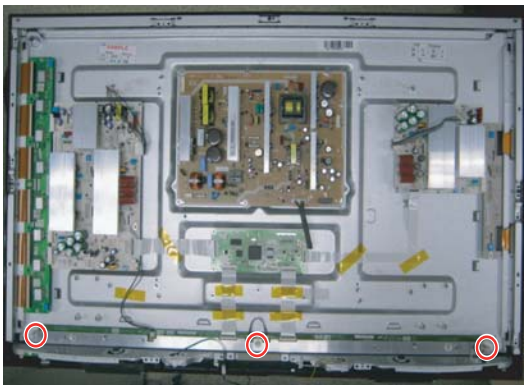
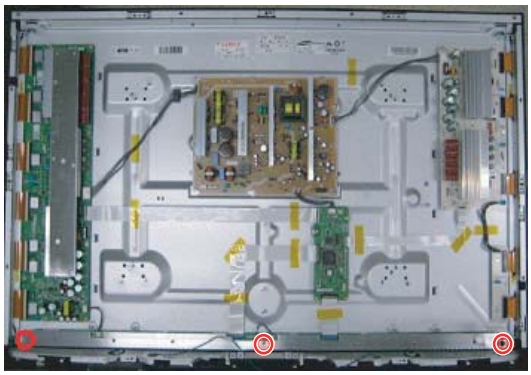
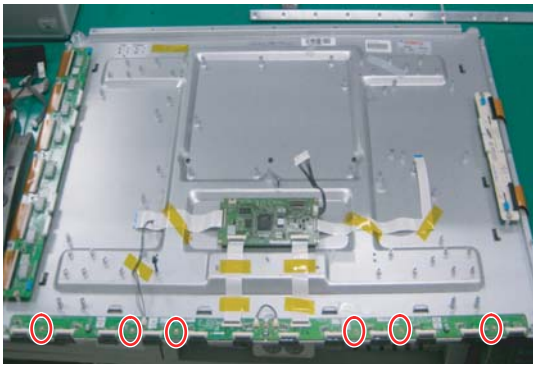
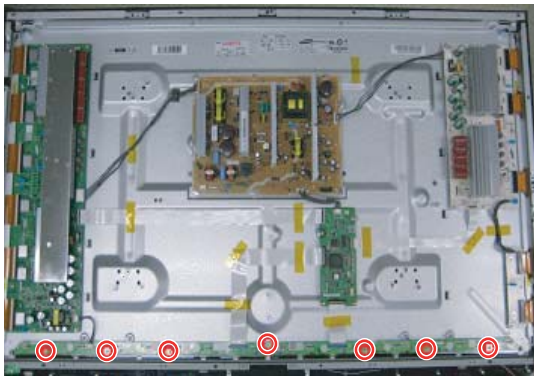
3-1-11 Separation of ASSY PDP MODULE P-X MAIN BOARD

Part Name	Description	Description Photo
Flat Cable	① Detach all Connectors from the X Main Board. ※ To separate the Flat Cable of the X-Board, press the upper and the lower sides of the connector. ⚠: Pinch the sides, but then push down in the ribbon, it should slide out after that.	 
X-Main Board	① Remove 6 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the X-Main Board.	

3-1-12 Separation of ASSY PDP MODULE P-Y MAIN BOARD

Part Name	Description	Description Photo
Flat Cable	① Detach the 6 scan board connectors from the panel .	
42" Y-Scan Board	① Remove 3 screws. : PH,+,WWP,M3,L8,NI PLT	
50" Y-Scan Board	① Remove 9 screws. : PH,+,WWP,M3,L8,NI PLT	
Y-Scan Board	① Remove 4 screws. : PH,+,WWP,M3,L8,NI PLT ② Detach all connectors from the Y-Main Board. ▶ This is only for 42".	

3-1-13 Separation of ASSY PDP MODULE P-ADDRESS BUFFER BOARD

Part Name	Description	Description Photo
42" Still Bar	① Remove 3 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the still bar. ▶ Before removing the still bar, you should lift up the panel a little.	
50" Still Bar	① Remove 3 screws. : PH,+,WWP,M3,L8,NI PLT ② Remove the still bar. ▶ Before removing the still bar, you should lift up the panel a little.	
42" Buffer Board	① Detach the all connectors from the buffer board. ② Remove 6 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the E-Board and F-Board.	
50" Buffer Board	① Detach the all connectors from the buffer board. ② Remove 7 screws. : PH,+,WWP,M3,L8,NI PLT ③ Remove the E-Board and F-Board.	

3-1-14 Separation of ASSY PANEL BRACKETS

Part Name	Description	Description Photo
Panel Brackets	① Remove 7 screws. (◯) : BH,+,B,M4,L3,ZPC(BLK) ② Remove the Side Panel Brackets.	

3-1-15 Separation of ASSY PCB FUNCTION & DECO LED

Part Name	Description	Description Photo
Function Board	① Remove 3 screws. : BH,+,B,M4,L3,ZPC(BLK)	

4. Troubleshooting

4-1 Troubleshooting

4-1-1 First Checklist for Troubleshooting

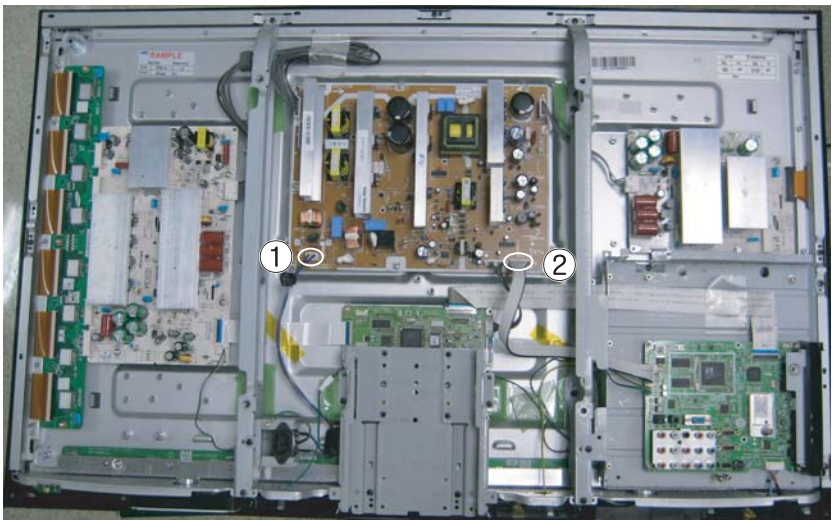
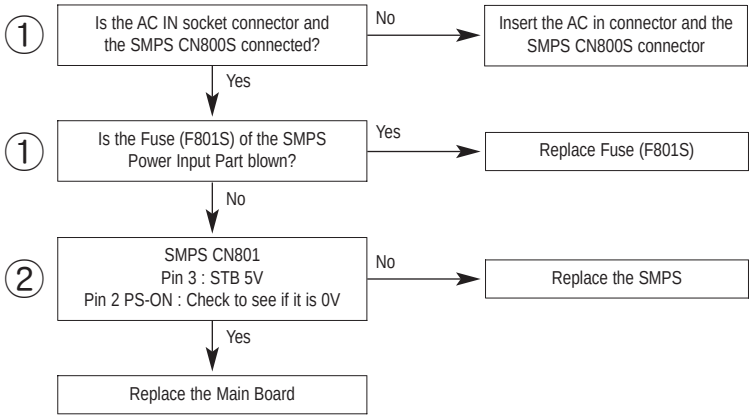
1. Check the various cable connections first.
   - Check to see if there is a burnt or damaged cable.
   - Check to see if there is a disconnected or loose cable connection.
   - Check to see if the cables are connected according to the connection diagram.

2. Check the power input to the Main Board.

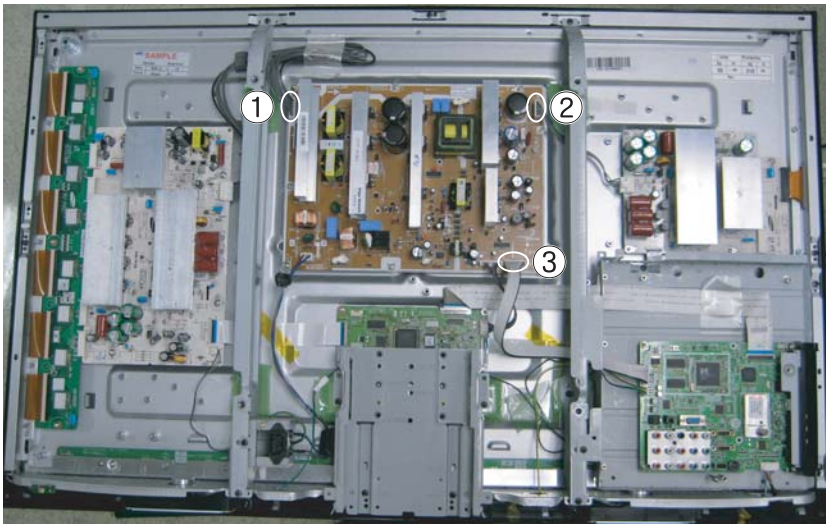
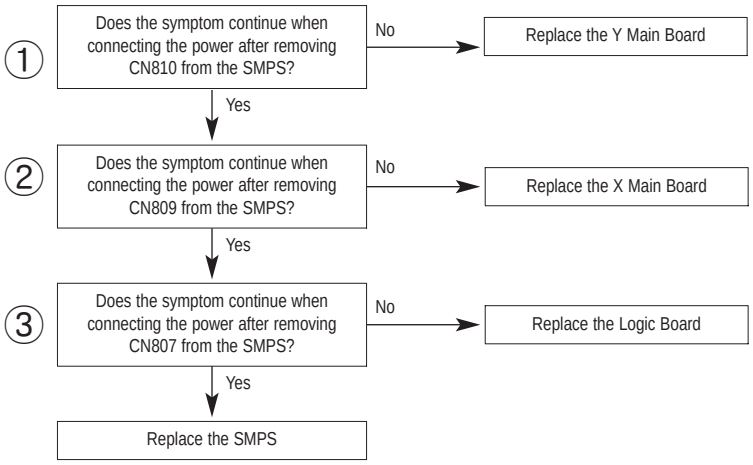
3. Check the voltage in and out between the SMPS ↔ Main Board, between the SMPS ↔ X, Y Main Board, and between the Logic Boards.

4-1-2 Checkpoints by Error Mode

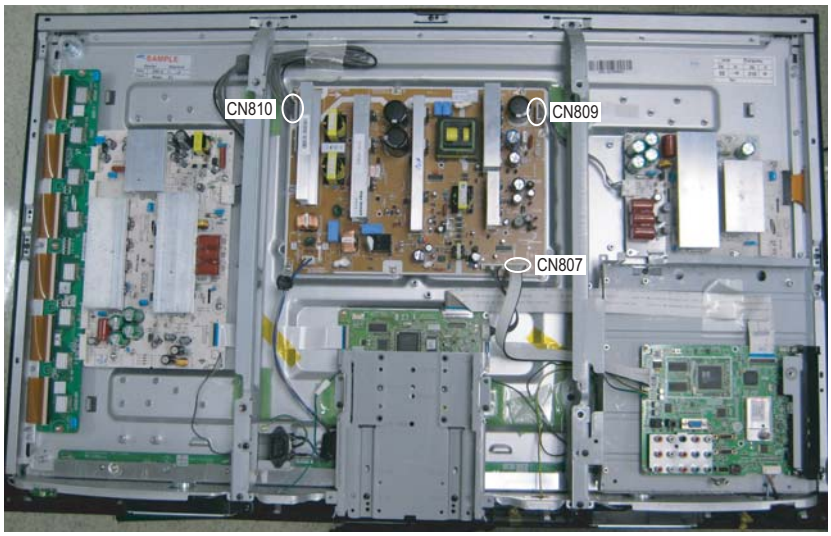
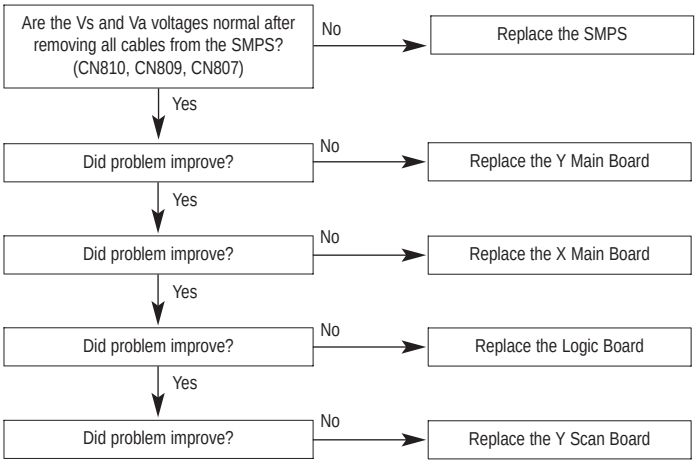
■ No Power

Symptom	- The LEDs on the front panel do not work when connecting the power cord. - The SMPS relay does not work when connecting the power cord. - The units appears to be dead.
Major Checklist	The SMPS relay or the LEDs on the front panel does not work when connecting the power cord if the cables are improperly connected or the Main Board or SMPS is not functioning. In this case, check the following: - Check the internal cable connection status inside the unit. - Check the fuses of each part. - Check the output voltage of SMPS. - Replace the Main Board.
Troubleshooting Procedures	 <42" (50" is almost same with 42")> 

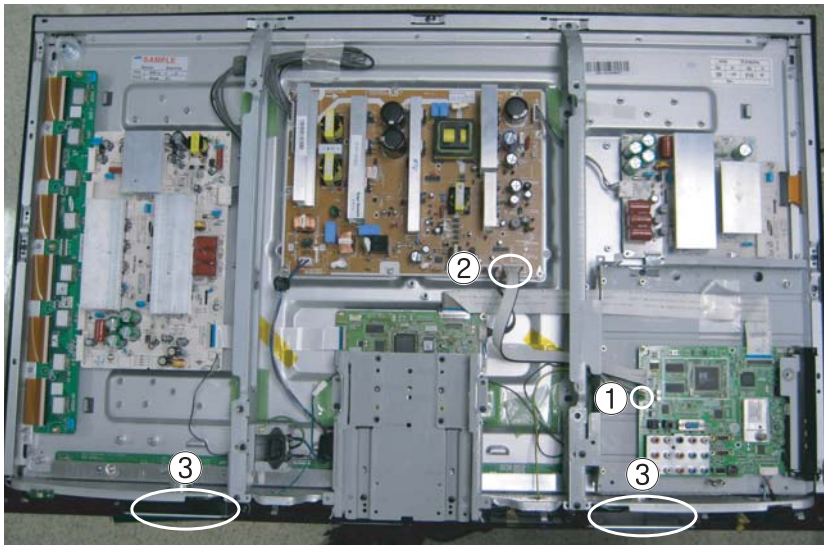
■ When the unit is repeatedly turned on and off

Symptom	- The SMPS relay is repeatedly turned on and off.
Major Checklist	In general, the SMPS relay repeatedly turns on and off by the protection function due to a defect on a board connected to the SMPS. - Disconnect all cables from the SMPS, operate the SMPS alone and check if the SMPS works properly and if each voltage output is correct. - If the symptom continues even when SMPS is operated alone, replace the SMPS. - If the symptom is not observed when operating the SMPS alone, find any defective assemblies by connecting the cables one by one.
Troubleshooting Procedures	 <42" (50" is almost same with 42")> 
Caution	When separating and connecting the cables such as CN810, CN809, CN808, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

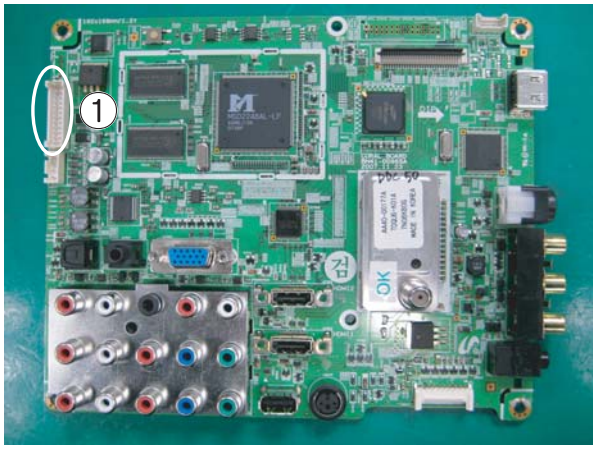
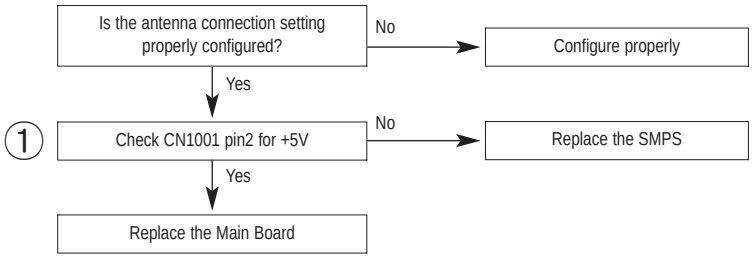
■ No Picture (When audio is normal)

Symptom	- Audio is normal but no picture is displayed on the screen.
Major Checklist	- This may happen when the Main Board is functioning but the X, Y Main Board, Logic Board, or Y Buffer Boards are not. - The output voltage of the Main SMPS. - This may happen when the LVDS cable connecting the Main Board and the Logic Board is disconnected.
Troubleshooting Procedures	 <42" (50" is almost same with 42")> 
Caution	When separating and connecting the cables such as CN810, CN809, CN807 of the Main SMPS, CN4701 of the X Main Board, and CN5707 of the Y Main Board, a spark may be generated by the electric charge of the high capacity capacitor. Therefore, wait some time after disconnecting the power cord from the unit.

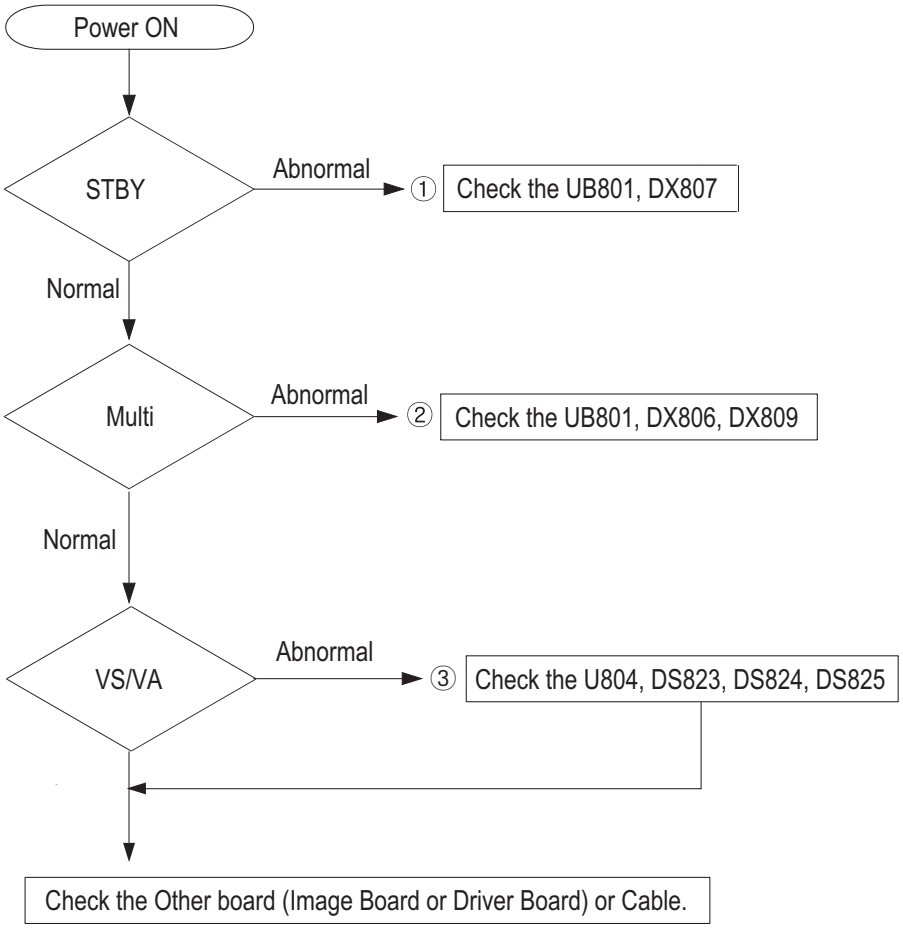
■ No Sound

Symptom	- Video is normal but there is no sound.
Major Checklist	- When the speaker connectors are disconnected or damaged. - When the sound processing part of the Main Board is not functioning. - Speaker defect.
Troubleshooting Procedures	 <42" (50" is almost same with 42")> ① Is the cable connection between the Main Board and the speaker properly connected? — No → Connect the cable properly or replace the cable, if necessary. Yes ② Is the output voltage of SMPS normal? (CN801 #13) — No → Replace the SMPS Yes Is the speaker output terminal of the Main Board normal? — No → Replace the Main Board Yes ③ Replace the Speaker

■ No Video

Symptom	- A normal/cable network analog broadcast screen is blank or abnormal but OSD is OK.
Major Checklist	- Check the antenna connection settings (Air: NTSC / ATSC, Cable: NTSC) - Check the CVBS cable connection. - Check the power input of the Main board.
Troubleshooting Procedures	 

■ SMPS Troubleshooting



■ Drive Board Troubleshooting

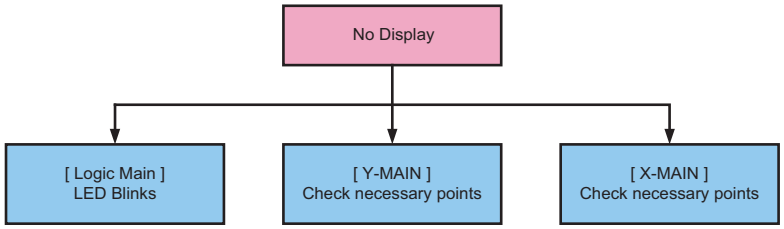
1) Troubleshooting Summary

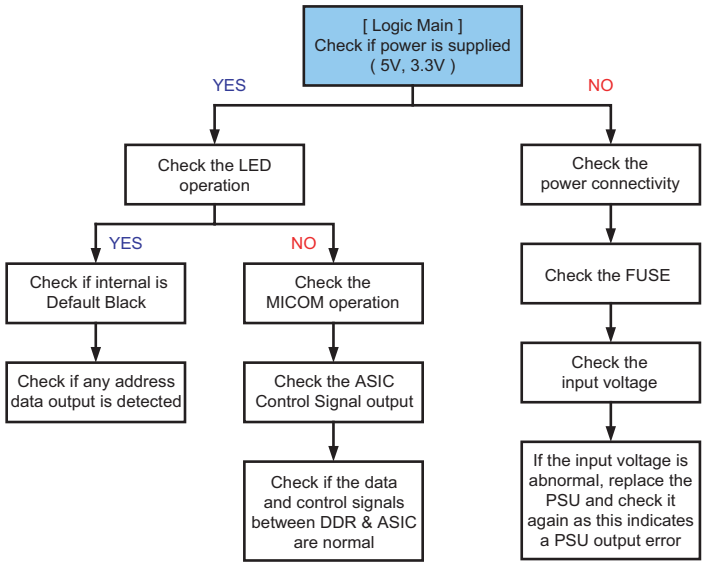
Condition Name	Description	Related Board
No Voltage Output	Operating Voltage don't exist	PSU
No Display	Operating Voltage exist, but an Image doesn't exist on screen	Y-MAIN, X-MAIN, Logic Main, Cable
Abnormal Display	Abnormal Image (not open or short) is no screen	Y-MAIN, X-MAIN, Logic Main
Sustain Open	Some horizontal lines don't exist on screen	Scan Buffer, FPC of X/Y
Sustain Short	Some horizontal lines appear to be linked on screen	Scan Buffer, FPC of X/Y
Address Open	Some vertical lines don't exist on screen	Logic Main, Logic Buffer, TCP
Address Short	Some vertical lines appear to be linked on screen	Logic Main, Logic Buffer, TCP

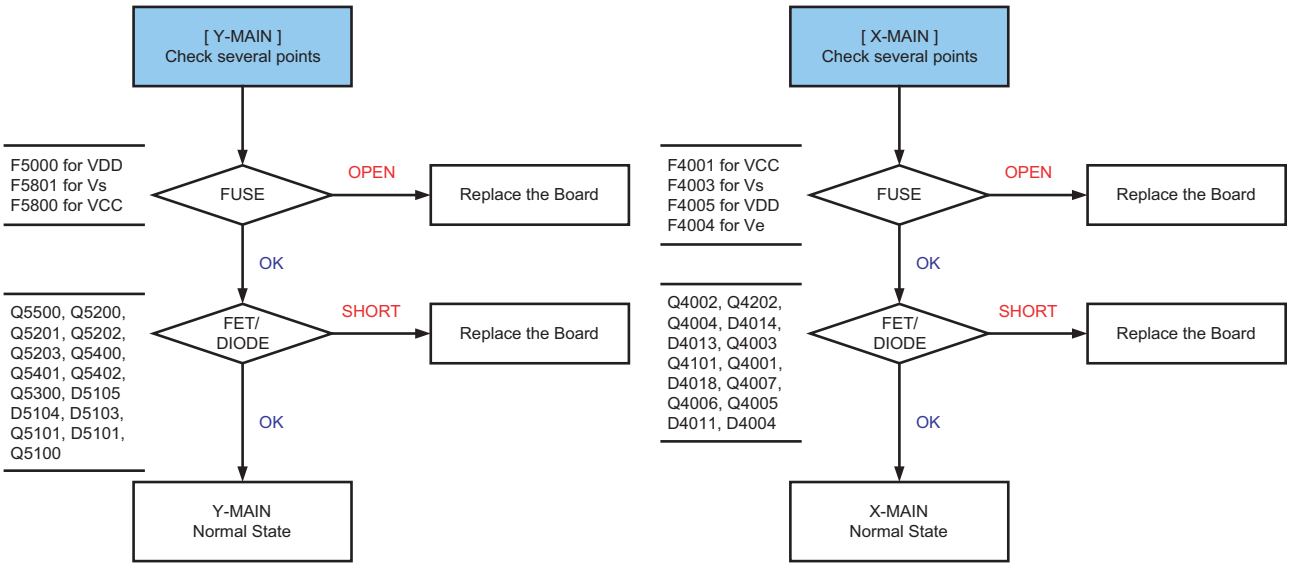
2) Troubleshooting Procedure in Abnormal Conditions

① No Display

▶ No Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.

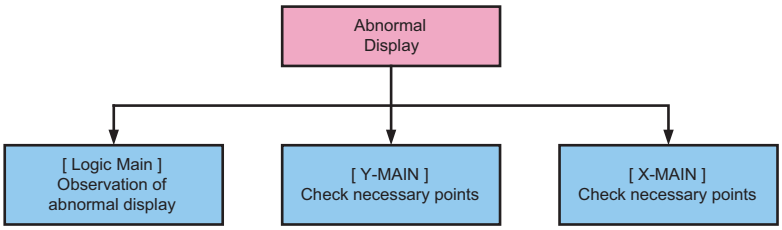


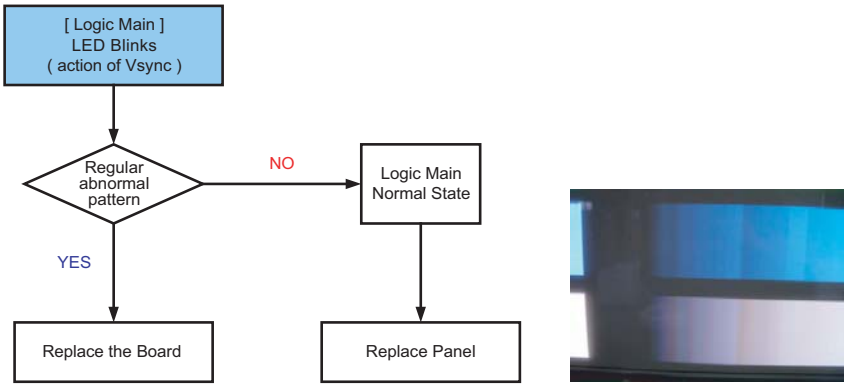


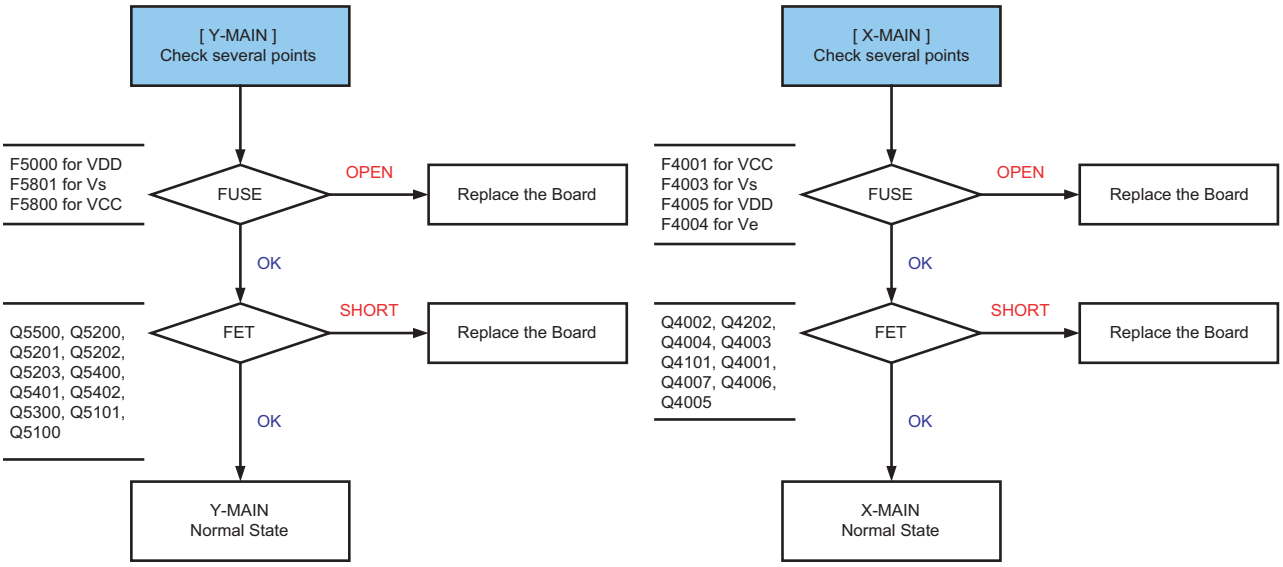


② Abnormal Display(Abnormal Image is on Screen.(except abnormality in Sustain or Address))

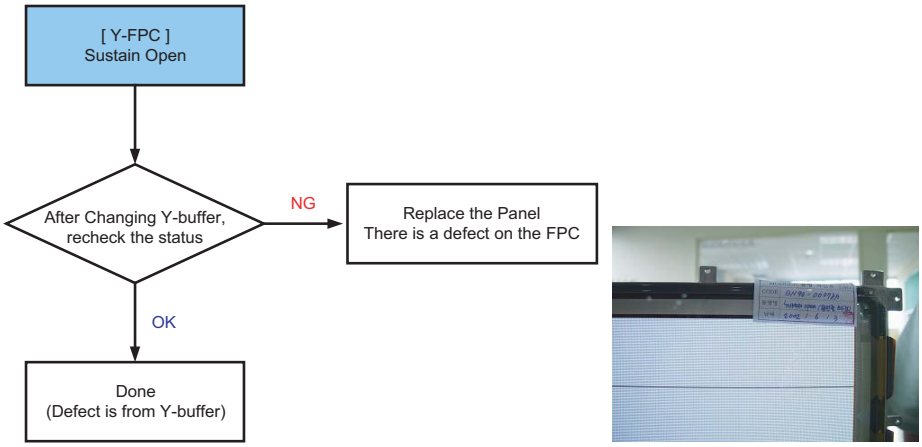
▶ Abnormal Display is related with Y-MAIN, X-MAIN, Logic Main and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.


Abnormal Display
[Logic Main] Observation of abnormal display
[Y-MAIN] Check necessary points
[X-MAIN] Check necessary points

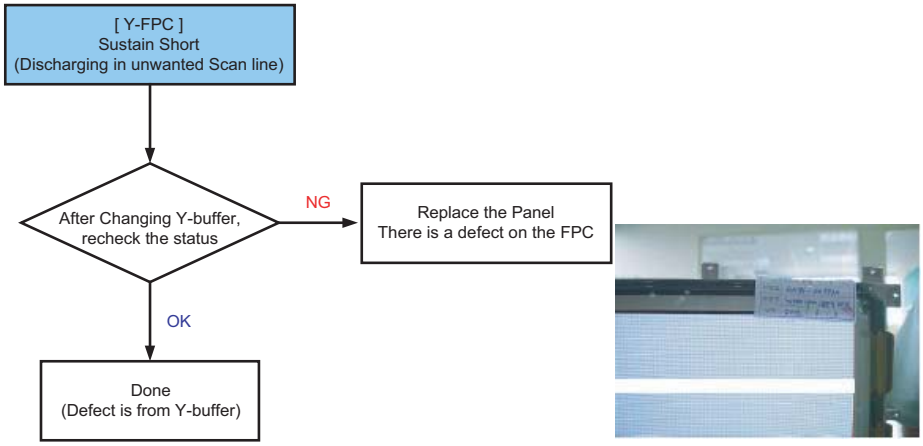




③ Sustain Open (some horizontal lines don't exist on screen)

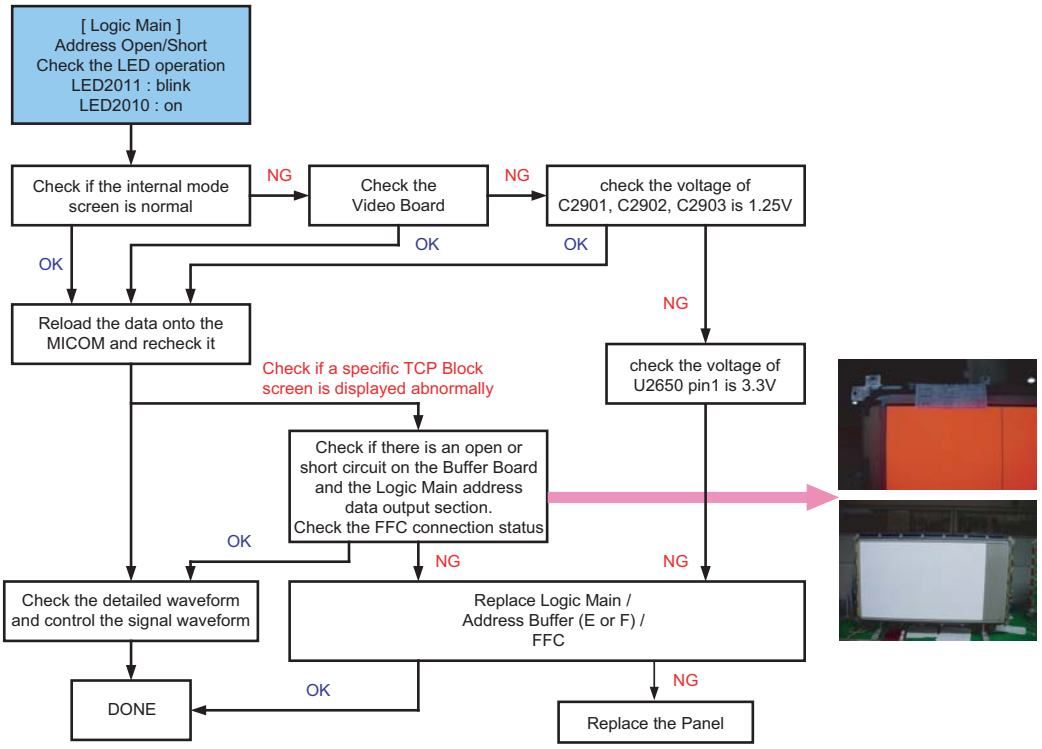


④ Sustain Short (some horizontal lines appear to be linked on Video)

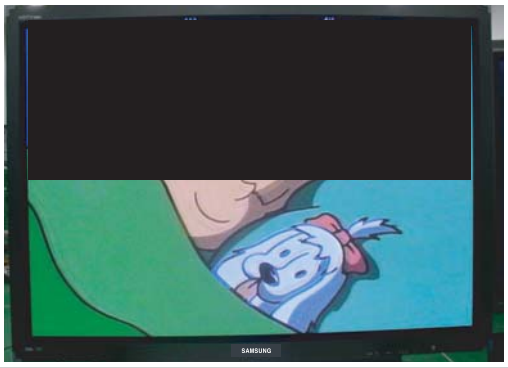


⑤ Address Open, Short

▶ Address Open and Short is related with Logic Main, Logic Buffer, FFC, TCP film and so on.
This page shows you how to check the boards, and the following pages show you how to find the defective board.


[Logic Main]
Address Open/Short
Check the LED operation
LED2011 : blink
LED2010 : on
Check if the internal mode screen is normal
NG
Check the Video Board
NG
check the voltage of C2901, C2902, C2903 is 1.25V
OK
OK
OK
NG
Reload the data onto the MICOM and recheck it
Check if a specific TCP Block screen is displayed abnormally
check the voltage of U2650 pin1 is 3.3V
Check if there is an open or short circuit on the Buffer Board and the Logic Main address data output section. Check the FFC connection status
OK
NG
NG
Check the detailed waveform and control the signal waveform
Replace Logic Main / Address Buffer (E or F) / FFC
OK
NG
DONE
Replace the Panel

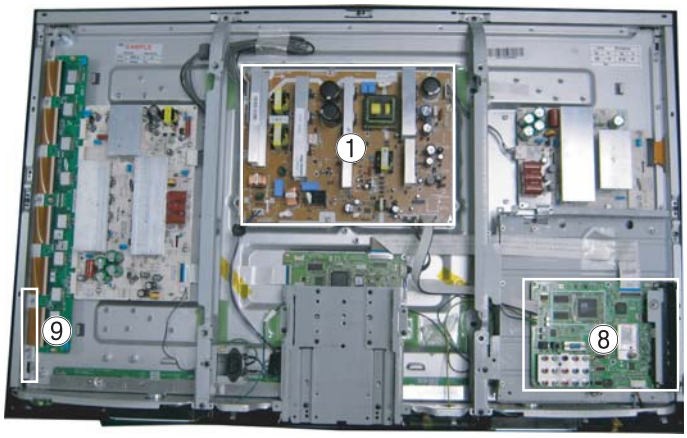
4-1-3 Troubleshooting

Symptom	Related Image	Causes and Countermeasures
A blank vertical cell (block) appears on the screen.		Address buffer defect - Replace the corresponding upper/lower buffers (E, F) COF defect (burnt) - Replace the module
A green screen appears when the TV is turned on.		The Scale is not reseting - Replace the Main board
The OSD box appears but there is no text.		Incorrect program version - Check the version of each program - Replace the Main board
A blank upper (or lower) block appears on the screen.		Upper/Lower Y Buffer defect - Replace the corresponding upper/lower buffers (E, F)

Symptom	Related Image	Causes and Countermeasures
Either the main or sub picture does not appear.		Replace the Main board
A vertical green line appears on the screen.		The SMPS voltage is incorrect - Adjust the SMPS voltage according to the voltage printed on the module label
Dim screen (blurred in red)		X-Main board defect - Replace the X-Main board
A blank screen appears		- Replace the Y-Main board

4-1-4 Troubleshooting Procedures by assembly

No	Assembly	Major Symptoms
1	SMPS-PDP TV	No power, Blank screen, the Relay repeats On and Off.
2	ASSY PDP MODULE P-X-MAIN	Blank screen
3	ASSY PDP MODULE P-Y-MAIN	Blank screen
4	ASSY PDP MODULE P-LOGIC MAIN	Blank screen, Screen noise
5	ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	Row Bar screen is blank (42" Only)
6	ASSY PDP MODULE P-ADDRESS E BUFFER	Corresponding Buffer Board block screen is blank.
7	ASSY PDP MODULE P-ADDRESS F BUFFER	Corresponding Buffer Board block screen is blank.
8	ASSY PCB MISC-MAIN	No Power, Abnormal screen for each input source, PIP screen trouble, Sound trouble
9	ASSY BOARD P-FUNCTION	The side function key does not work properly



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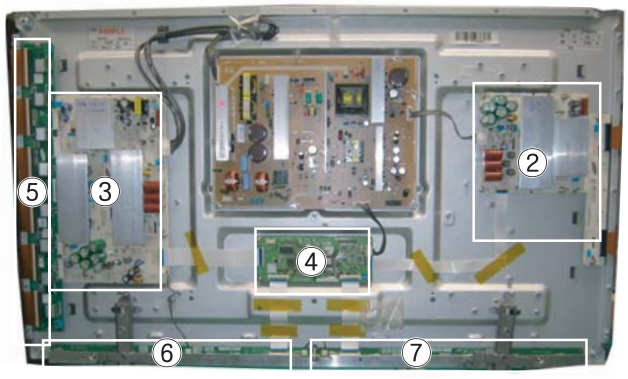

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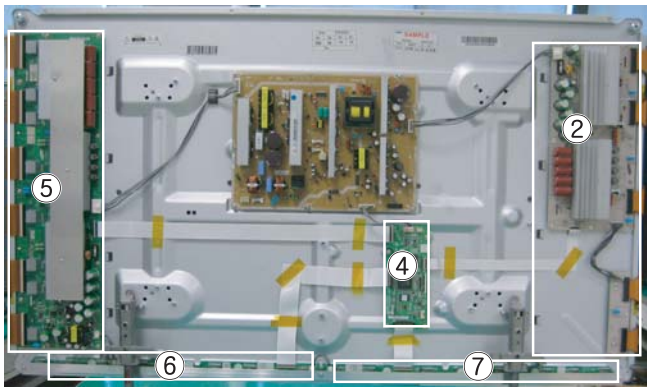


4-2 Adjustment

4-2-1 Service Instruction

■ Before Performing After Sales Services

1. Check if the measurement and test equipment is working properly.
2. Secure sufficient work space for disassembling the product.
3. Prepare a soft pad for disassembling the product.

■ Service adjustment item after replacement of Board

<If adjustment equipment is available>

① PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
② Adjust Calibration of Factory Mode for each mode.
③ Adjust White Balance of Factory Mode.

<If adjustment equipment is not available>

① Write down the value of HDMI White Balance of Factory Mode before replacing Board.
② PDP Option of Factory Mode → set the Factory Data Type item as the suitable value of relevant model.
③ Set the value of HDMI White Balance with the value written down before.

4-2-2 How to Access Service Mode

1. General Remote

To Enter: **POWER OFF** → **MUTE** → **1** → **8** → **2** → **POWER ON**
(Interval between key strokes: less than 3 sec)

To Exit: **POWER OFF** → **POWER ON**

2. Factory Remote

To Enter: **POWER ON** → **INFO** → **FACTORY Key** (Interval between key strokes: less than 3 sec)

To Exit: **POWER OFF** → **POWER ON**

Press the Factory key twice with a key stroke interval of more than 1 second (Pressing once enters Aging Mode)

3. Settings when entering Factory mode
- Sharp Screen (Dynamic), Color Tone (Cool1), Factory (Dynamic CE Off), DNIe(Off)

4. Adjustment Procedures
- Channel ▲ ▼ Key : Select an item.
- Volume ◀ ▶ Key : Adjust the value up or down.
- MENU Key : Save the changes to the EEPROM and return to the higher-level mode.
- Using the Numeric (0~9) keys, you can select a channel.
- Using the SOURCE key, you can switch AV modes.

5. Initial SERVICE MODE DISPLAY State

1. ADC	16. PDP Option	
2. ADC Target	17. Expert Settings	
3. ADC Result	18. Expert D-Settings	
4. Option Byte	19. Expert Gray Scale	
5. Adjust	20. Expert C-Space	
6. White Balance	21. Expert Others	
7. W/B Movie	22. CHECKSUM	0x0000
8. EPA standard	23. Reset	
9. FBE3		
10. VDEC	T-CRLAUSC-00xx	
11. Scaler	Dec 29 2007	
12. Sharpness		
13. PE	PN42A450	
14. Sound	EDID FAIL	
15. Dynamic Contrast	Option :	

※ The version of the firmware displayed at the bottom of the screen may differ and the firmware is subject to change for the improvement of product functions.

※ If you have adjusted the settings in Service Mode, you have to reset the product.

※ If you exit Service Mode without reset, DNIe vlaue keeps Off regardless of setting up the user.

4-2-3 Factory Data ★ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. ADC

Item	Data
AV Calibration	-
Comp Calibration	-
PC Calibration	-
HDMI Calibration	-

2. ADC Target

Item	Default data
1st_AV_Low	18
1st_AV_High	220
1st_AV_Delta	1
1st_COMP_Low	16
1st_COMP_High	235
1st_COMP_Delta	1
1st_PC_Low	1
1st_PC_High	235
1st_PC_Delta	1
2nd_AV_Low	1
2nd_AV_High	235
2nd_AV_Delta	1
2nd_COMP_Low	1
2nd_COMP_High	235
2nd_COMP_Delta	1
2nd_PC_Low	1
2nd_PC_High	235
2nd_PC_Delta	1
2nd_HDMI_Low	1
2nd_HDMI_High	235
2nd_HDMI_Delta	1

3. ADC Value

Item	Default data	TV/AV/S_Video	Component	PC	DTV/HDMI	Remark
LUMA_OFFSET	128	140	-	-	-	
LUMA_GAIN	128	118	-	-	-	
RED_CUTOFF	128	-	128	130	-	
GREEN_CUTOFF	128	-	127	132	-	
BLUE_OFFSET	128	-	128	128	-	
RED_GAIN	128	-	105	78	-	
GREEN_GAIN	128	-	105	79	-	
BLUE_GAIN	128	-	105	78	-	
2nd_R offset	128	106	110	110	112	
2nd_G offset	128	108	113	110	112	
2nd_B offset	128	106	111	110	112	
2nd_R gain	128	128	118	128	118	
2nd_G gain	128	128	117	128	118	
2nd_B gain	128	1150	118	128	118	

4. Option Byte

Item	Default data
LCD/PDP	LCD
Model Select	L450
Inch	32 Inch
Panel Option	32AM
Dimming	INT
Mirror	OFF
AV Number	2
COMP. Number	2
HDMI Number	3
Light Effect	ON
HeadPhone	ON
Anynet+(HDMI-CEC)	ON
Carrier Mute	OFF
Volume Curve	Large
RS 232C	Auto wall
Gamma	0.9
Mute Time[RF]	400ms
CH Memory	Samex
PC Mode Ident	Auto
HDMI Mode Ident	Auto
HPD Control	1200ms

5. Adjust

Item	Default data
Watchdog Enable	ON
Watchdog Count	10sec
Spread Spectrum	OFF
Shop Mode	OFF
DEBUG MODE	DEBUG OFF
MSTAR Out Format	Vesa
FBE In Format	Vesa
FBE Out Format	Vesa
Hotel Option	
EDID	
HDCP Key Download	

6. White Balance

Item	Default data	TV/AV/S_Video	Component	PC	DTV/HDMI	Remark
Sub Brightness	128	128	128	128	128	
R-Offset	128	128	128	128	128	
G-Offset	128	128	128	128	128	
B-Offset	128	128	128	128	128	
Sub Contrast	128	128	128	128	128	
R-Gain	128	128	128	128	128	
G-Gain	128	128	128	128	128	
B-Gain	128	128	128	128	128	

7. W/B Movie

Item	Default data
W/B MOVIE	Off
MODE	-
Color Tone	-
MSub Brightness	-
MSub Contrast	-
W2_Rgain	-
W2_Bgain	-
W2_Roffset	-
W2_Boffset	-
W1_Rgain	-
W1_Bgain	-
W1_Roffset	-
W1_Boffset	-
NOR_Rgain	-
NOR_Bgain	-
NOR_Roffset	-
NOR_Boffset	-
C2_Rgain	-
C2_Bgain	-
C2_Roffset	-
C2_Boffset	-
Movie Contrast	-
Movie Bright	-
Movie Color	-
Movie Sharpness	-
Movie Tint	-
Movie Backlight	-
Movie Gamma	-

8. EPA Standard

Item	Default data
Standard Contrast	80
Standard Brightness	45
Standard Sharpness	50
Standard Color	50
Standard Tint	0
Standard Backlight	7

9. FBE3

Item	Default data	RF	AV / S-VIDEO	COMP480i/480p	COMP720p/1080i/1080p	HDMI	DTV	HDMI PC/Aanalog PC
Patt-Sel	0	0	0	0	0	0	0	0
B-Slope gain	60	60	60	60	60	60	60	60
B-Tilt min	30	30	30	30	30	30	30	30
B-Tilt max	110	110	110	110	110	110	110	110
Lfunc-Basis	75	75	75	75	75	75	75	75
Hfunc-Basis	80	80	80	80	80	80	80	80
Mean-Offset1	30	30	30	30	30	30	30	30
Mean-Offset2	235	235	235	235	235	235	235	235
Mean-Slope	112	112	112	112	112	112	112	112
ACR-Offset	10	10	10	10	10	10	10	10
ACR-Th1	10	10	10	10	10	10	10	10
ACR-Th2	110	110	110	110	110	110	110	110
Skin-Enable	ON	ON	ON	ON	ON	ON	ON	ON
Skin-UV	128	128	128	128	128	128	128	128
Sub color	128	128	128	128	128	128	128	128
M-Skin-UV	128	128	128	128	128	128	128	128
M-Sub color	128	128	128	128	128	128	128	128

10. VDEC

Item	Default data	RF	AV	S-VHS
Saturation	0x80	80	80	80
CTI_MD	0x02	2	2	2
CBCRLP_MD	0x01	0	0	0

11. Scaler

Item	Default data
DNR_off	0
DNR_low	2
DNR_mid	3
DNR_high	4
Y_DELAY_EN	1
YC_STEP	1

12. Sharpness

Item	Default data	RF	AV/S-VHS	component		HDMI		DTV		PC / HDMI pc timing
				480i/p	720p1080i / p	480i/p	720p1080i / p	SD	HD	
H1 Gain	0x10	0x10	0x10	0x10	0x10	0x10	0x10	0x10	0x10	0x10
H2 Gain	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08
H3 Gain	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08
H4 Gain	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08
V1 Gain	0x28	0x28	0x28	0x28	0x28	0x28	0x28	0x28	0x28	0x28
V2 Gain	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08	0x08
H overshoot	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF
V overshoot	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60
H undershoot	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF	0xFF
V undershoot	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60	0x60
Coring TH2	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01
Coring TH1	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01	0x01
Mid_color_level	0xAC									

13. PE

Item	Default data	control register			480i	480p	720p	1080i

14. Sound

Item	Range
Carrier Mute	1
High DEV	0
CM_TH_HIGH	2990
CM_TH_LOW	20B0
ST_PILOT_TH_HIGH	D00
ST_PILOT_TH_LOW	600
ST_VAR_TH_HIGH	1800
ST_VAR_TH_LOW	1000
SAP_AMP_TH_HIGH	1
SAP_AMP_TH_LOW	4
SAP_NSR_TH_HIGH	4500
SAP_NSR_TH_LOW	3000
"AMP_Volume"	29
Limiter Attack	9
Limiter Release	F
Post Scale	7F
Speaker EQ	0
AV Sync.	3C

15. Dynamic Contrast

Item	Default data
Dynamic Contrast	On
Dynamic Dimming	Off
Y_MEAN	0

16. PDP Option

Item	Default data	control register	Range	Remark
Pixel Shift Test	Off		ON/OFF	
Panel Pattern Select	0			
Panel Resolution	-			
Panel Inch	-			
Panel Version	-			
Panel Temperature	-			
Logic SW Version	-			
Model Select	P450			
Factory Data Type	42SP5			
Checksum	-			
MB SW	Off			
MB Offset	0xC0			
Ve Signal Control	0xBFFF			
FRC Mode	100Hz			
FRC DBG MarkOn	0			

17. Checksum

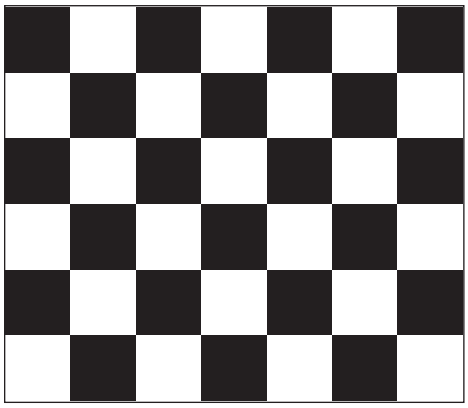
18. Reset

4-2-4 Service Adjustment - You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

Adjust spec.

1. Source : HDMI
2. Setting Mode : 1280*720@60Hz
3. Pattern : Pattern #24 (Chess Pattern)



(Chess Pattern)

4. Use Equipment : CA210 & Master MSPG925 Generator

※ Use other equipment only after comparing the result with that of the Master equipment.

Input mode	Calibration	Pattern
CVBS IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC Analog IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

<Table 1>

■ Method of Color Calibration (AV)

1) Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN 1 port
2) Press the Source key to switch to "AV1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "AV Calibration" menu.
6) In "AV Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "AV Calibration" status from Failure to Success.

■ Method of Color Calibration (Component)

1) Apply the 720p Lattice (N0. 6) pattern signal to the Component IN 1 port
2) Press the Source key to switch to "Component1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "Comp Calibration" menu.
6) In "Comp Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "Comp Calibration" status from Failure to Success.

■ Method of Color Calibration (PC)

1) Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port
2) Press the Source key to switch to "PC" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "PC Calibration" menu.
6) In "PC Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "PC Calibration" status from Failure to Success.

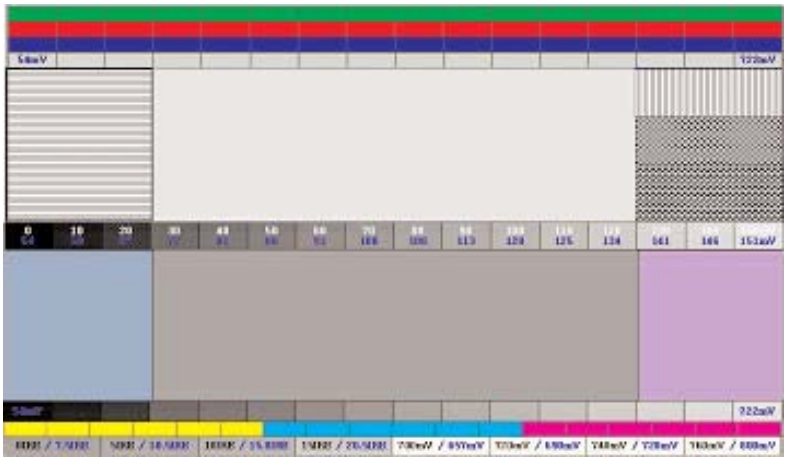
■ Method of Color Calibration (HDMI)

1) Apply the 720p Lattice (N0. 6) pattern signal to the HDMI1/DVI IN port
2) Press the Source key to switch to "HDMI1" mode
3) Enter Service mode
4) Select the "Calibration" menu
5) Select the "HDMI Calibration" menu.
6) In "HDMI Calibration Off" status, press the "▶" key to perform Calibration.
7) When Calibration is complete, it returns to the high-level menu.
8) You can see the change of the "HDMI Calibration" status from Failure to Success.

■ White Balance

Adjust spec.

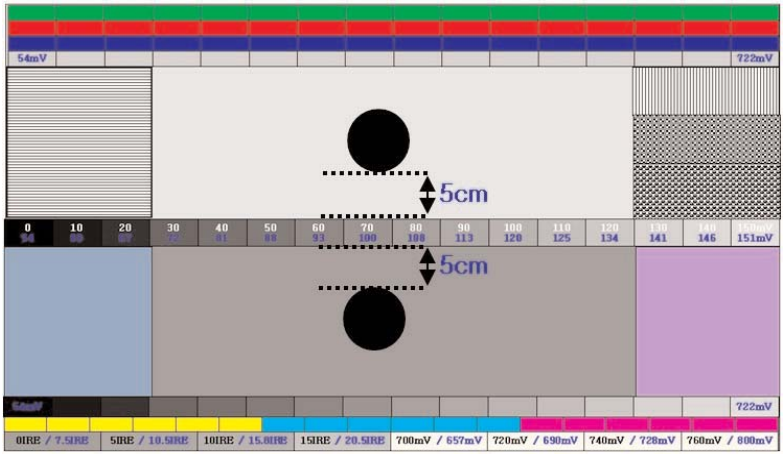
1. Source : HDMI
2. Setting Mode : 1280*720@60Hz
3. Pattern : Pattern #92
4. Use Equipment : MIK-7256 (MSPG925L)



(SAMSUNG WHITE BALANCE Adjustment PATTERN with FPD)

5. Work order

① Connect HDMI (DVI) output terminal of MIK-7256 (MSPG925L) to the HDMI input in main set
② Set the input to HDMI mode
③ Enter the White Balance menu of service mode
④ Contact CA-210 sensor to glass filter



(Fixed Position of CA210 Probe)

⑤ Adjust the low light
- Adjust Sub-Bright (LBE) to set the 'Y' value
- Adjust R-Offset ('x') and B-Offset ('y') to the color coordinates.
* Do not adjust G-Offset data

⑥ Adjust the high light.
- Adjust Sub-Contrast (LBE) to set the 'Y' value
- Adjust R-Gain ('x') and B-Gain ('y') to the color coordinates.
* Do not adjust the G-gain data

Input mode		(CA-210)		
		x	Y(L)	T(K), MPCD
CVBS (NTSC)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.5 cd/㎡	11,000 (-3)
			(3.0 Ft)	
COMP (720P)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.3 cd/㎡	11,000 (-6)
			(3.0 Ft)	
HDMI (720P)	H/L	278	FIX	10,500 (± 0)
			(Sub_CT:128)	
	L/L	278	10.3 cd/㎡	10,500 (± 0)
			(3.0 Ft)	

4-2-5 Replacements & Calibration

* PDP 42" Check items listed after changing each

Replaced assembly items	Check Items
ASSY PCB MISC-MAIN	1) Auto Program 2) White Balance Adjust
SMPS-PDP TV	Vs, Va voltage check and adjust
ASSY PDP MODULE P-LOGIC MAIN	Not to be adjusted
ASSY PDP MODULE P-X-MAIN	
ASSY PDP MODULE P-Y-MAIN	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-ADDRESS E BUFFER	
ASSY PDP MODULE P-ADDRESS F BUFFER	
ASSY BOARD P-SIDE HDMI A/V	

* PDP 50" Check items listed after changing each

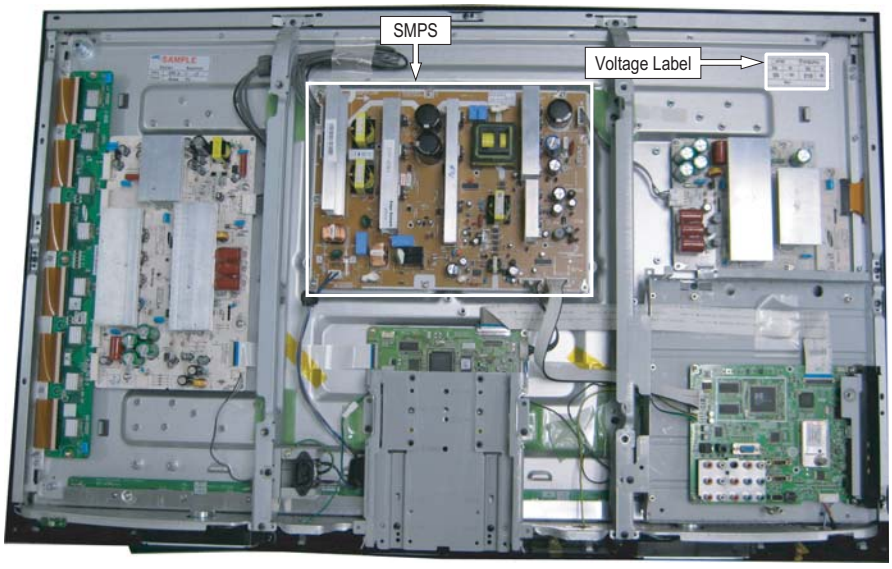
Replaced assembly items	Check Items
ASSY PCB MISC-MAIN	1) Auto Program 2) White Balance Adjust
SMPS-PDP TV	Vs, Va voltage check and adjust
ASSY PDP MODULE P-LOGIC MAIN	Not to be adjusted
ASSY PDP MODULE P-X-MAIN	
ASSY PDP MODULE P-Y-MAIN	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-Y-MAIN SCAN BUFFER	
ASSY PDP MODULE P-ADDRESS E BUFFER	
ASSY PDP MODULE P-ADDRESS F BUFFER	
ASSY BOARD P-SIDE HDMI A/V	

※ When replacing the SMPS or PDP panel, you have to check the voltage printed on the panel sticker and adjust it.

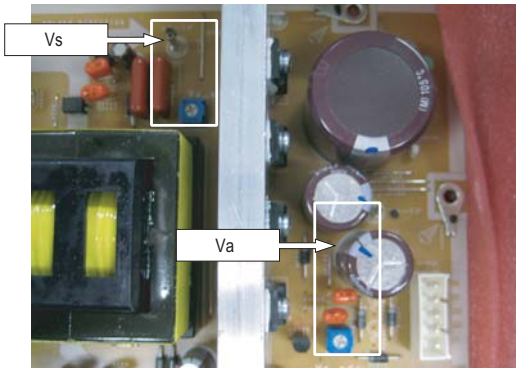
■ Voltage Adjustment

1. After replacing the SMPS or PDP panel, you must adjust the voltage referring to the voltage label printed on the panel.
   (If you do not adjust the voltage, an abnormal discharge symptom may appear.)

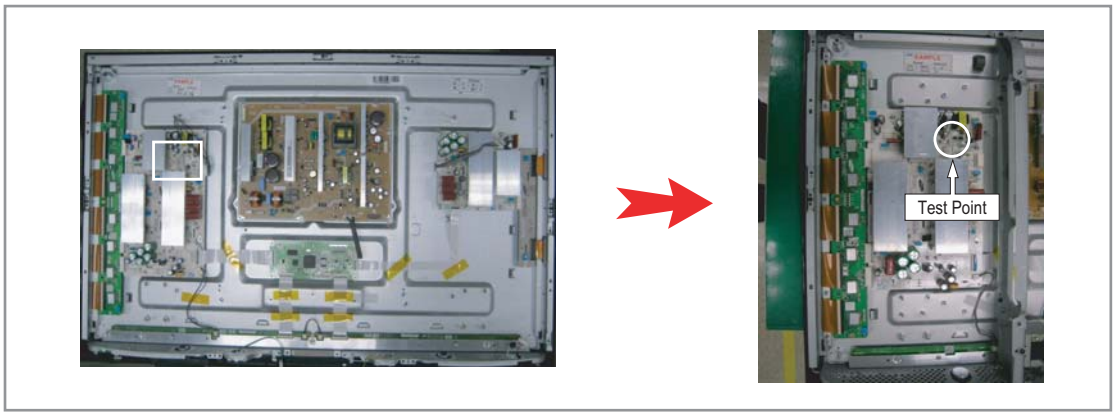
	Value	Board Adjustment
Vs	210	SMPS
Va	55	
Vset	-	
Ve	95	
Vscan	-190	



2. A point of adjusting SMPS-MAIN voltage.



■ Y-RR and Y-FR controls



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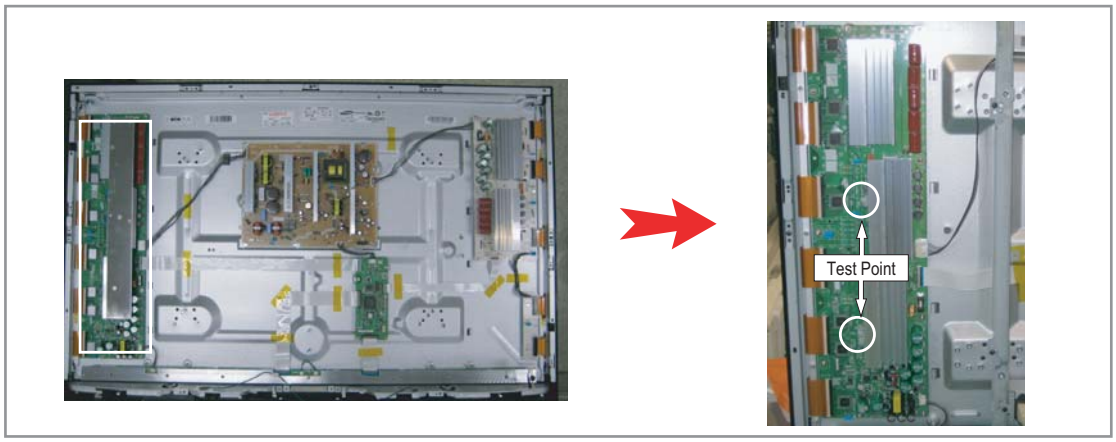
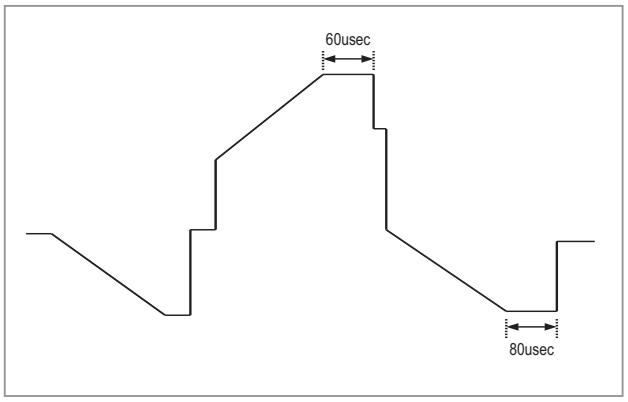
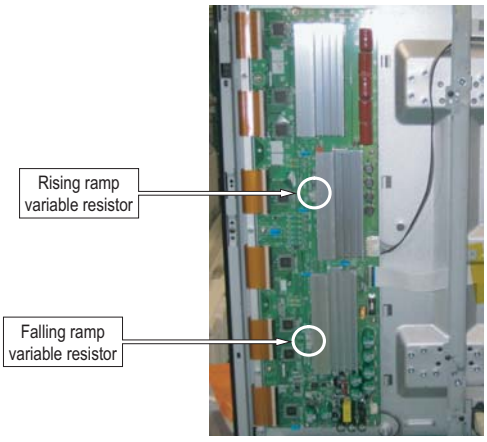


<50">

Set the main reset (rising : 60usec, falling : 80usec) by change the value of variable resistor.





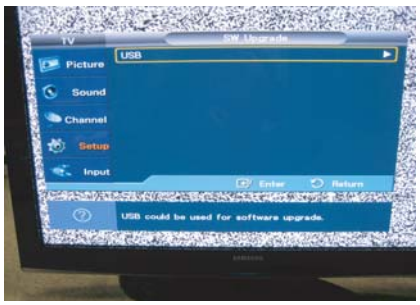
▶ The picture is only for 50".
42" has only Falling ramp variable resistor.

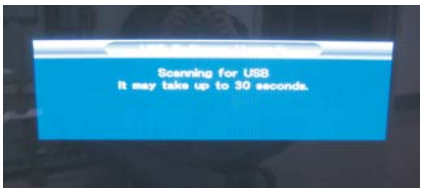
4-3 Upgrade

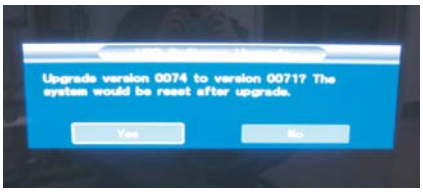
4-3-1 USB Download Method

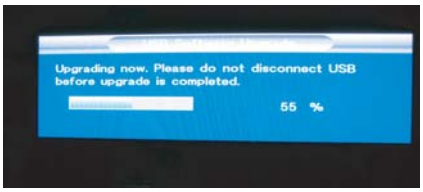
1. Copy the Upgrade Files into the path "T-CRLAUSC" in USB flash driver.

2. USB Download
   ① Insert the USB Memory Stick to the SERVICE port in Stand-by mode.
   ② Turn the power on.
   ③ Press "MENU" and find "SW Upgrade" in Menu "SETUP".
   ④ Select the "SW Upgrade" from the menu.
   ⑤ Select "USB" from the menu.
   ⑥ The banner OSD "Scaning for USB..." is displayed.
   ⑦ The banner OSD "Upgrade version **** to version ****" is displayed. Select "Yes".
   ⑧ The banner OSD "Upgrade version **** to version ****" is displayed. It takes about 30 sec. (Warning: Don't remove USB flash driver during upgrade.)
   ⑨ The banner OSD "Upgrade is completed" is displayed when the upgrade is completed.
   ⑩ Remove the USB flash driver from PDP TV and check the program version.



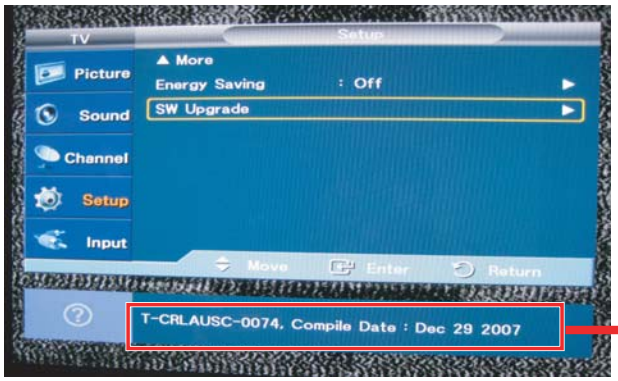






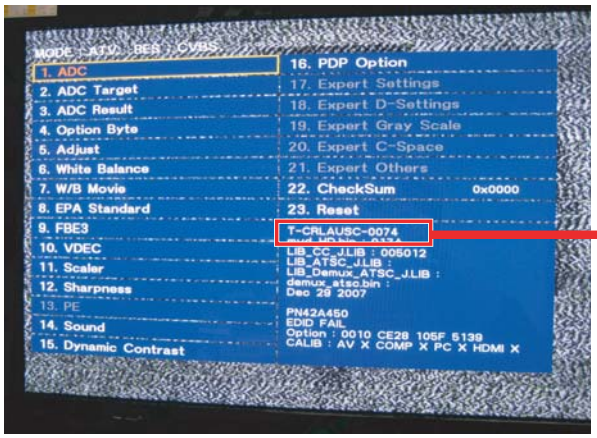
4-3-2 How to Check the Version of the Program

1. Procedures for checking in the User Menu
   ① Select the "Setup" menu in the Menu screen
   ② Place the cursor over the "SW Upgrade" of "Setup" and press the "info" key on the remote control.
   ③ The version of the program is displayed at the bottom of the Menu screen



PROGRAM VERSION

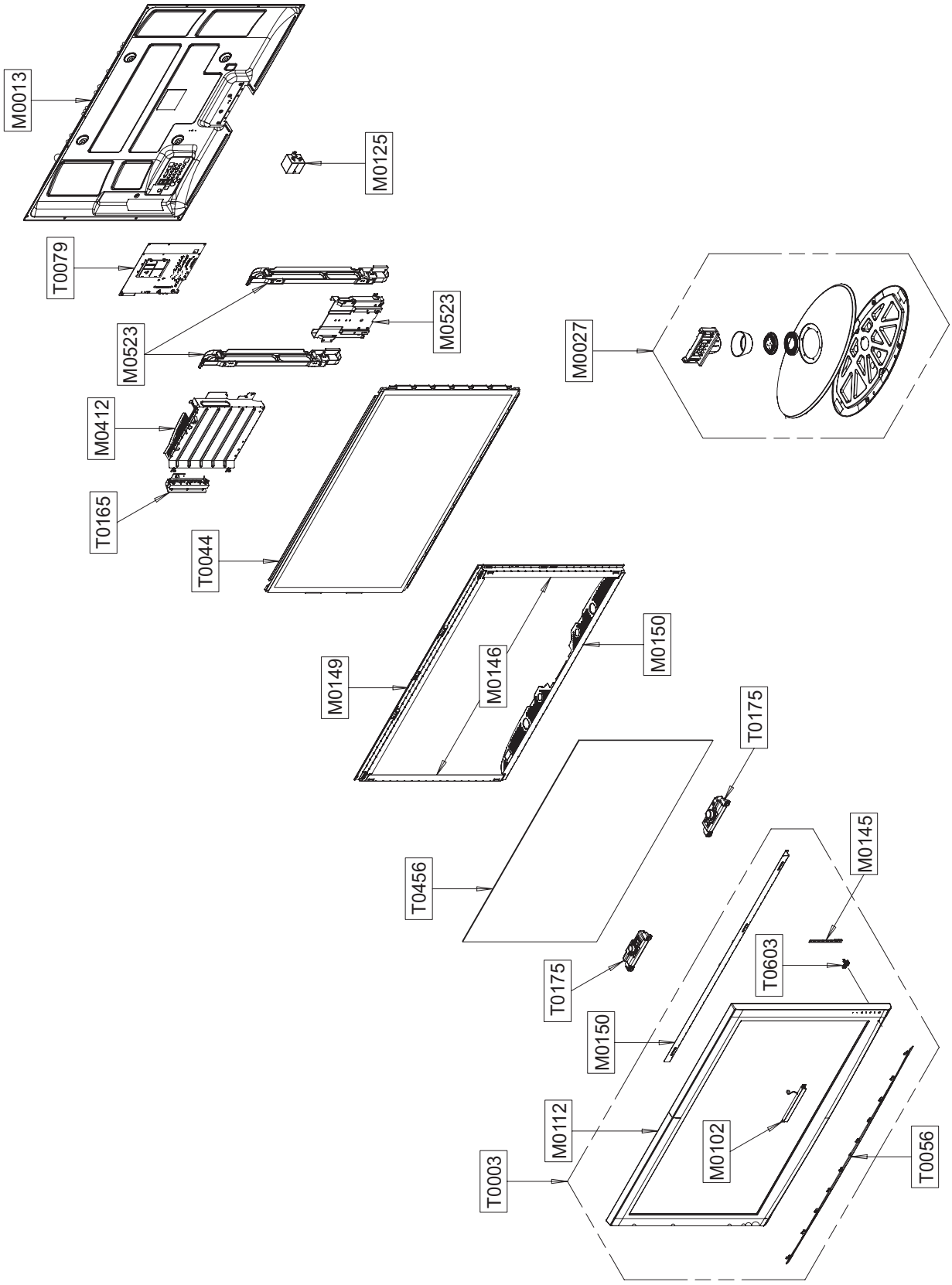
2. How to check Program Version on factory mode.



PROGRAM VERSION

5. Exploded View & Part List

5-1 PN42A450P1DXZC Exploded View



Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
M0013	BN96-06771A	ASSY COVER P-REAR	P450 42Inch,PCM,0.5,BK	1	S.A	
M0027	BN96-05835A	ASSY STAND P-BASE	-,42Q9/42C9,-,ABS,SF-0	1	S.A	
M0102	BN96-04802A	ASSY BLU P	Bordeaux Plus,BACK LIGHT UNIT	1	S.A	
M0112	BN63-04217A	COVER-FRONT	450 , 42",PMMA+ABS,HB,BK27,B	1	S.N.A	
M0125	BN96-07190A	ASSY INLET P	Pyrope,350mm,IG-N06BES1,250	1	S.A	
M0145	BN96-07248B	ASSY BOARD P-FUNCTION&IR	PYROPE,CT5000-5	1	S.A	
M0146	BN96-06750B	ASSY BRACKET P-FILTER SIDE	P410 42Inch,S	2	S.N.A	
M0149	BN96-06749A	ASSY BRACKET P-FILTER TOP	P450 42Inch,SA	1	S.N.A	
M0150	BN96-06751A	ASSY BRACKET P-FILTER BOTTOM	P450 42Inch	1	S.N.A	
M0150	BN96-06748A	ASSY BRACKET P-SUPPORT FILTER	P410 42Inc	1	S.N.A	
M0412	BN96-06697D	ASSY BRACKET P-PCB	42P450,SEA,SECC,T0.5	1	S.N.A	
M0523	BN96-06753A	ASSY BRACKET P-SUPPORT STAND	P410 42Inch	1	S.N.A	
M0523	BN96-06756A	ASSY BRACKET P-WALL	P410 42Inch,SECC T1.	2	S.A	
T0003	BN96-06769A	ASSY COVER P-FRONT	P450 42Inch,,ABS+PMMA	1	S.A	
T0044	BN96-07188A	ASSY PDP MODULE P	S42AX-YB04,42HD W3,PL4	1	S.A	⚠
T0056	BN63-04212A	COVER-DECORATION	450 , 42",ABS,HB,GRAY(G	1	S.N.A	
T0079	BN94-01461A	ASSY PCB MISC-MAIN	PN42A450P1DXZA,F45A,B	1	S.A	⚠
T0165	BN96-06696A	ASSY COVER P-AV	Spinel 50,58"	1	S.A	
T0175	BN96-07086A	ASSY SPEAKER P	8ohm,CORAL,PDP,10W,350/45	1	S.A	
T0175	BN96-07086B	ASSY SPEAKER P	8ohm,CORAL,PDP,10W,200mm,	1	S.A	
T0456	BN67-00176A	GLASS-FILTER EMI	42"C9,Sputter,T=46%,984	1	S.A	⚠
T0603	BN64-00628A	WINDOW-RMC	50P9,PC,VIOLET	1	S.N.A	

5-2 PN42A450P1DXZC Service Item

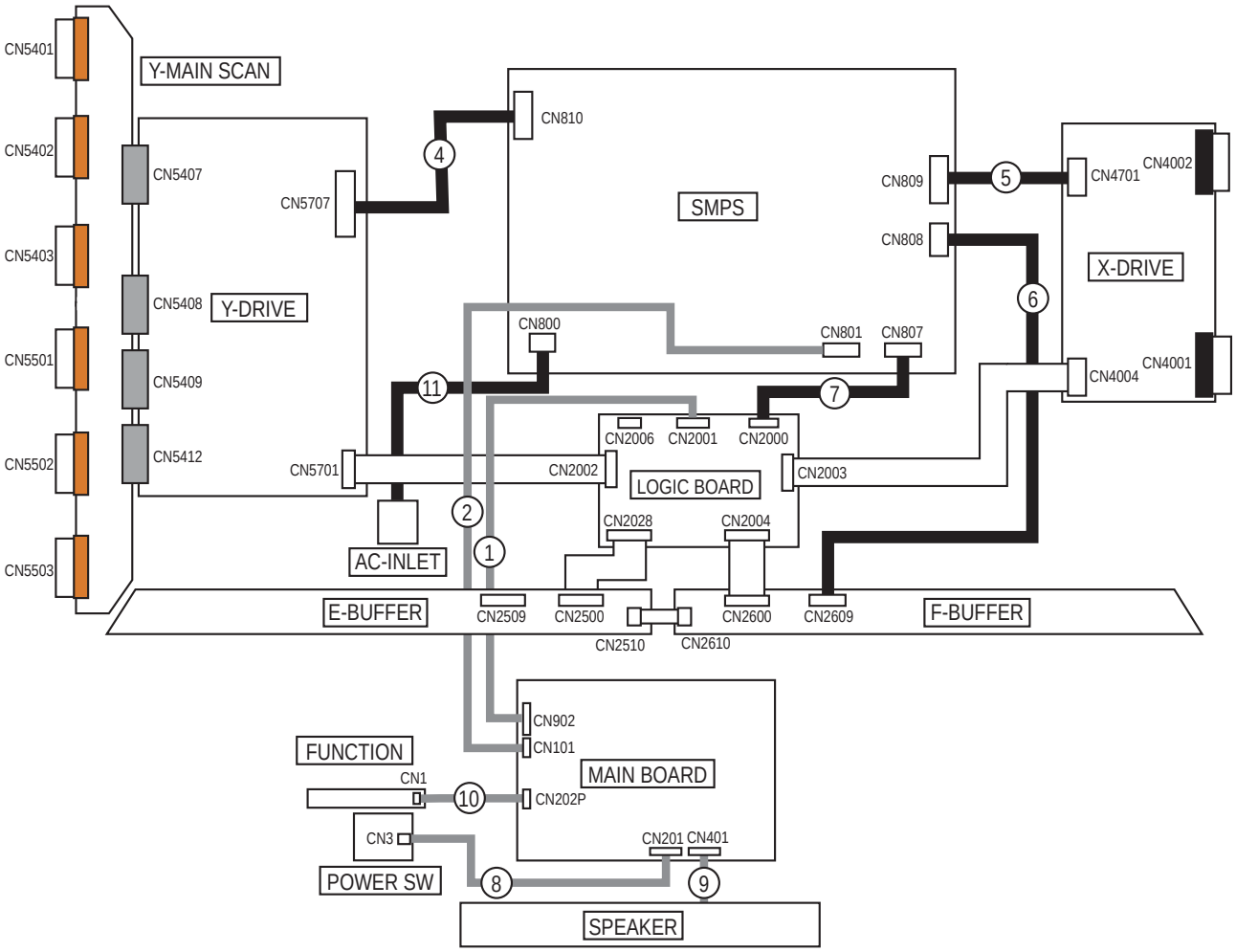
※ This is the list which is available to repair the real material at the time of service.

Loc. No.	Code No.	Description	Specification	Q'ty	Remark
M0013	BN96-06771A	ASSY COVER P-REAR	P450 42Inch,PCM,0.5,BK	1	
M0027	BN96-05835A	ASSY STAND P-BASE	-,42Q9/42C9,-,ABS,SF-0	1	
M0154	BN96-06760A	ASSY PDP P-Y-MAIN BUFFER	PL42AX030A,42HD	1	
M0523	BN96-06756A	ASSY BRACKET P-WALL	P410 42Inch,SECC T1.	2	
M2893	BN39-00827A	LEAD CONNECTOR	LILLY 42"/50",UL1007#26,U	1	
T0003	BN96-06769A	ASSY COVER P-FRONT	P450 42Inch,,ABS+PMMA	1	
T0037	BN96-06761A	ASSY PDP P-LOGIC MAIN	PL42AX030A,42HD W3	1	
T0038	BN96-06762A	ASSY PDP P-ADDRESS E-BUFFER	PL42AX030A,4	1	
T0039	BN96-06763A	ASSY PDP P-ADDRESS F-BUFFER	PL42AX030A,4	1	
T0044	BN96-07188A	ASSY PDP MODULE P	S42AX-YB04,42HD W3,PL4	1	⚠
T0045	BN96-06757A	ASSY PDP P-X-MAIN BOARD	PL42AX030A,42HD	1	⚠
T0045	BN96-06758A	ASSY PDP P-X-MAIN BUFFER	PL42AX030A,42HD	1	
T0074	BN59-00687A	REMOCON	TM-96B,49,AMERICA	1	
T0079	BN94-01461A	ASSY PCB MISC-MAIN	PN42A450P1DXZA,F45A,B	1	⚠
T0175	BN96-07086A	ASSY SPEAKER P	8ohm,CORAL,PDP,10W,350/45	1	
T0175	BN96-07086B	ASSY SPEAKER P	8ohm,CORAL,PDP,10W,200mm,	1	
T0262	BN96-06759A	ASSY PDP P-Y-MAIN BOARD	PL42AX030A,42HD	1	⚠
T0764	BN44-00206A	SMPS-PDP TV	W3 PDP SMPS,SEM,AC/DC,406.6W	1	⚠

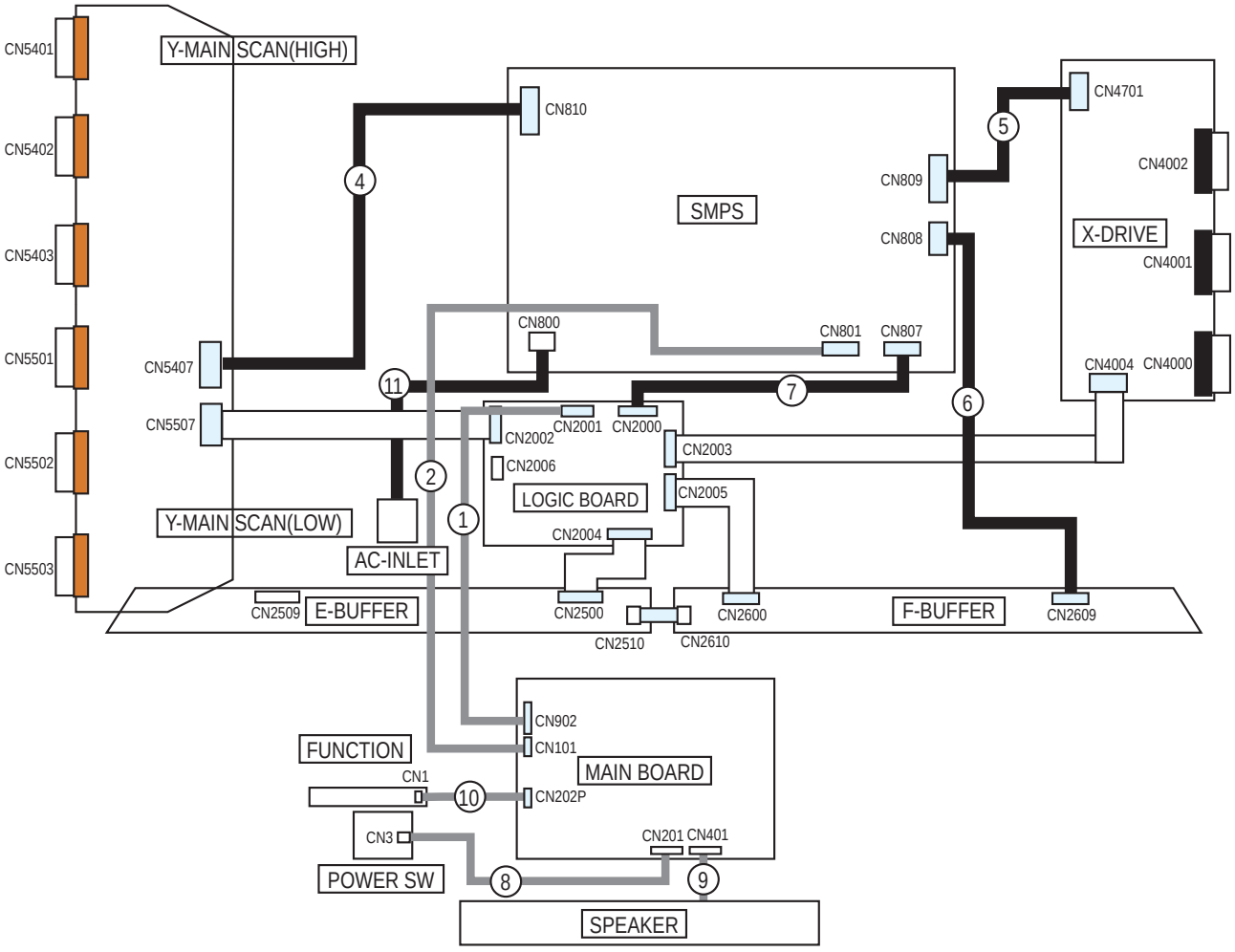
6. Wiring Diagram

6-1 Overall Wiring

<42" Overall Wiring>



<50" Overall Wiring>



※ The code number of cable(Lead-connector) can be changed, see "5. Exploded View & Part List."

Use	① LVDS	⑧ POWER CABLE	⑪ AC INLET
Code	42" - BN96-07158K 50" - BN96-07158F	BN39-00827A	BN96-07190A
Photo			

6-1-1 Pin Connection

① CN902(MAIN B'D) ↔ CN2001(LOGIC B'D)			
Pin No.	Signal	Pin No.	Signal
1	RxIN0-	16	NC
2	RxIN0+	17	GND
3	RxIN1-	18	WP
4	RxIN1+	19	SCL
5	RxIN2-	20	SDA
6	RxIN2+	21	LVDS Opt
7	RxINCLK-	22	DCC Opt
8	RxINCLK+	23	GND
9	RxIN3-	24	GND
10	RxIN3+	25	GND
11	NC	26	Vdd
12	NC	27	Vdd
13	NC	28	Vdd
14	NC	29	Vdd
15	NC	30	Vdd

② CN101(MAIN B'D) ↔ CN801(MAIN SMPS)							
CN101(MAIN B'D)				CN801(MAIN SMPS)			
Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	NC	13	5V	1	PS_ON	13	5V
2	SW_POWER	14	5V	2	NC(Auto_V)	14	5V
3	GND	15	5V	3	STBY	15	5V
4	STD_VCC	16	5V	4	GND_STBY	16	5V
5	GND	17	GND	5	GND_18V AMP	17	GND_12V
6	GND	18	GND	6	GND_18V AMP	18	GND_12V
7	18V	19	GND	7	18V AMP	19	12V
8	18V	20	13V	8	18V AMP	20	GND_12V
9	GND	21	13V	9	GND_5V	21	12V
10	GND	22	13V	10	GND_5V	22	12V
11	GND	23	NC	11	GND_5V	23	NC(FAN_ON)
12	GND	24	NC	12	GND_5V	24	NC(FAN_DET)

③
CN703S(MAIN B'D) ↔ CN101(SIDE AV)

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	GND	12	TXC-	23	NC	34	VIDEO_SR_IN
2	TX2+	13	GND	24	NC	35	VIDEO_SL_IN
3	TX2-	14	MICOM_CEC	25	GND	36	HP_IDENT
4	GND	15	GND	26	SVHS_IDENT	37	HP_OUT_R
5	TX1+	16	TSCL	27	SVHS_Y	38	HP_OUT_L
6	TX1-	17	TSDA	28	GND	39	USB_VCC
7	GND	18	LSCL	29	SVHS_C	40	B1.8V
8	TX0+	19	HDMI3_5V	30	GND	41	B3.3V
9	TX0-	20	HPD_SIL9185	31	VIDEO_IDENT		
10	GND	21	DDC_WP	32	VIDEO_CVBS		
11	TXC+	22	GND	33	GND		

④
CN810(SMPS)
↔
CN5707_42"(Y B'D)
CN5407_50"(Y B'D)

Pin No.	Signal
1	Vg
2	GND
3	GND
4	GND
5	Vs
6	Vs

⑤
CN809(SMPS)
↔
CN4701(X B'D)

Pin No.	Signal
1	Vg
2	GND
3	GND
4	Vs
5	Vs

⑥
CN808(SMPS)
↔
CN2609(E-BUFFER)

Pin No.	Signal
1	Va
2	GND
3	5.3V

⑦
CN807(SMPS)
↔
CN2000(LOGIC B'D)

Pin No.	Signal
1	STBY
2	VS_ON
3	N/C
4	PS_ON
5	RTN
6	5.3V
7	RTN
8	RTN
9	5.3V
10	5.3V

⑧
CN201(MAIN B'D)
↔
POWER&IR

Pin No.	Signal
1	IR
2	GND
3	A5V_1
4	LED_STB
5	BUZZER
6	KEY_INPUT1
7	KEY_INPUT2
8	GND
9	B5V
10	LED_CTRL

⑨
CN401(MAIN B'D)
↔
SPEAKER

Pin No.	Signal
1	R+_OUT
2	R-_OUT
3	L+_OUT
4	L-_OUT

⑩
CN202P(MAIN B'D)
↔
FUNCTION

Pin No.	Signal
1	KEY_INPUT1
2	KEY_INPUT2
3	GND

⑪
CN800(SMPS)
↔
AC INLET

Pin No.	Signal
1	AC Neutral
2	N/C
3	AC Live

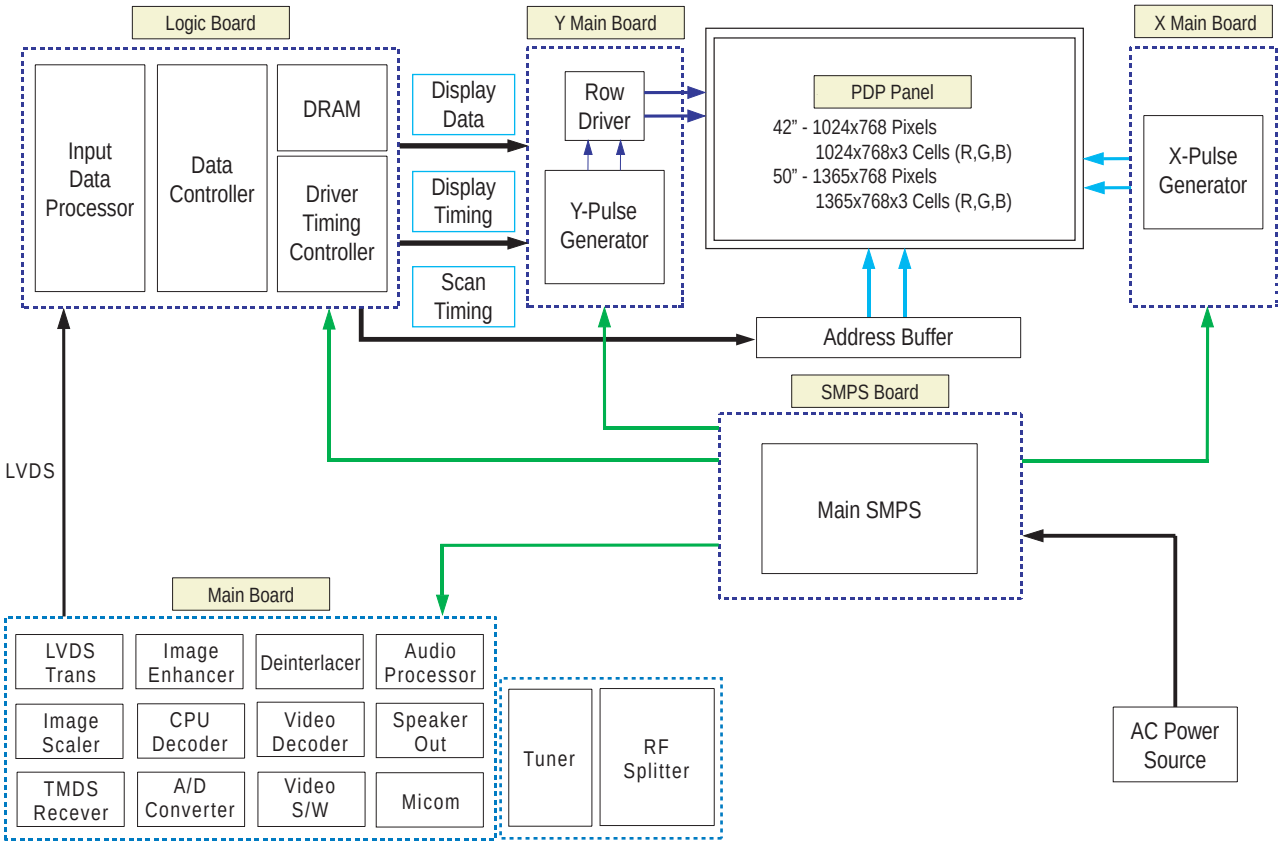
6-1-2 Connector role

42" Loc. No.	50" Loc. No.	Description
CN5401	CN5401	Horizontal Y-scan line(1~128) of Module and Y-Main Scan Connect
CN5402	CN5402	Horizontal Y-scan line(129~256) of Module and Y-Main Scan Connect
CN5403	CN5403	Horizontal Y-scan line(256~384) of Module and Y-Main Scan Connect
-	CN5512	Y-Main Scan(High) and Y-Main Scan(Low) Connect
CN5501	CN5501	Horizontal Y-scan line(384~512) of Module and Y-Main Scan Connect
CN5502	CN5502	Horizontal Y-scan line(512~640) of Module and Y-Main Scan Connect
CN5503	CN5503	Horizontal Y-scan line(640~768) of Module and Y-Main Scan Connect
CN5407	CN5407	Upper Y-Drive and Y-Main Scan Connect
CN5507	CN5507	Lower Y-Drive and Y-Main Scan Connect
CN5707	CN5507	Vs(205V),Vg(15v) Power input connect(6Pin) of Y-Drive
CN5701	CN5701	Y-Drive control signal from Logic Board
CN810	CN810	Vs(205V),Vg(15v) Power input connect(6Pin) of SMPS for Y-Drive
CN809	CN809	Vs(205V),Vg(15v) Power input connect(6Pin) of SMPS for X-Drive
CN808	CN808	Va(63V) ,5.3V Power input connect(3Pin) of SMPS for F-Buffer
CN807	CN807	Power input connect(10pin) for Logic Board
CN801	CN801	Image signal(LVDS) connect(41pin) from Main Board
CN800	CN800	AC Power input connect from AC-inlet
CN4002	CN4002	Horizontal X-scan line of Module and X-scan Connect(first Block)
CN4001	CN4001	Horizontal X-scan line of Module and X-scan Connect(second Block)
-	CN4000	Horizontal X-scan line of Module and X-scan Connect(third Block)
CN2000	CN2000	Power input connect(10pin) of Logic Board from SMPS
CN2001	CN2001	Image signal(LVDS) connect(41pin) of Logic board from Main Board
CN2002	CN2002	Y-Drive control signal of Logic Board
CN2004	CN2005	Address Data(684th~1366th) connect for F-Buffer board
CN2028	CN2004	Address Data(1st~683th) connect for E-Buffer board
CN2500	CN2500	Address Data(1st~683th) connect from Logic Board
CN2510	CN2510	Power input connect from F-Buffer Board
CN2610	CN2610	Power input connect to E-Buffer Board
CN2600	CN2600	Address Data(684th~1366th) connect from Logic board
CN2609	CN2609	Va(63V) ,5.3V Power input connect(3Pin) from SMPS
CN1101	CN1101	Power input connect(24Pin) from SMPS
CN2202	CN2202	Image signal(LVDS) connect(41pin) for Logic board
CN1605	CN1605	Function input(source,ch up/down...) connect on Main board
CN1404	CN1404	Video signal input connect form Side AV ass'y
CN1606	CN1606	Power SW input connect on Main Board
CN1203	CN1203	Speak out connect on Main Board
CN101	CN101	Video signal input connect on Side AV ass'y
CN1	CN1	Function input(source,ch up/down...) connect to Main board
CN3	CN3	Power SW input connect to Main Board

MEMO

7. Schematic Diagram

7-1 Circuit Description



■ SMPS Board

The SMPS used for the PDP has been designed to be efficient, compact and lightweight. For VS and VA outputs, a LLC converter has been used. For the other outputs, a Flyback converter has been used.

■ LOGIC Board

The logic circuit consists of a Logic Main Board and an Address Buffer Board. The Logic Main Board decodes the video signal encoded by the Video Board, outputs the ADDRESS data signal for each pattern and generates X and Y drive signals. The Address Buffer Board buffers and transfers the ADDRESS data output signal using TCP IC.

- LVDS with built-in video signal processing (W/L, error diffusion, APC, FCR, etc.) applied and 1 ASIC chip.
- Outputs the address Drive IC control and data signals to the Buffer Board.
- Outputs the control signal for the X and Y Drive Boards.
- Monitors major drive voltages (Micom Circuit Block); detects if a surge voltage has been applied and protects the Drive Circuit.
- Temperature Adaptive Operating Mode (Low Temperature/Room Temperature/High Temperature); Discharge optimization for each temperature level.

■ X-MAIN Board

Connects to the X terminal block, 1) provides maintaining voltage waveform (including ERC), and 2) maintains the Ve bias in the Scan section.

■ Y-MAIN Board

Connects to the Y terminal block, 1) provides maintaining voltage waveform (including ERC), 2) provides Y Rising, Falling Ramp waveforms, and 3) maintains the Vscan bias.

■ Address Buffer Board

It delivers the data signal and control signal to the TCP.

MEMO

7-2 Schematic Diagram

7-2-1 MAIN POWER BLOCK

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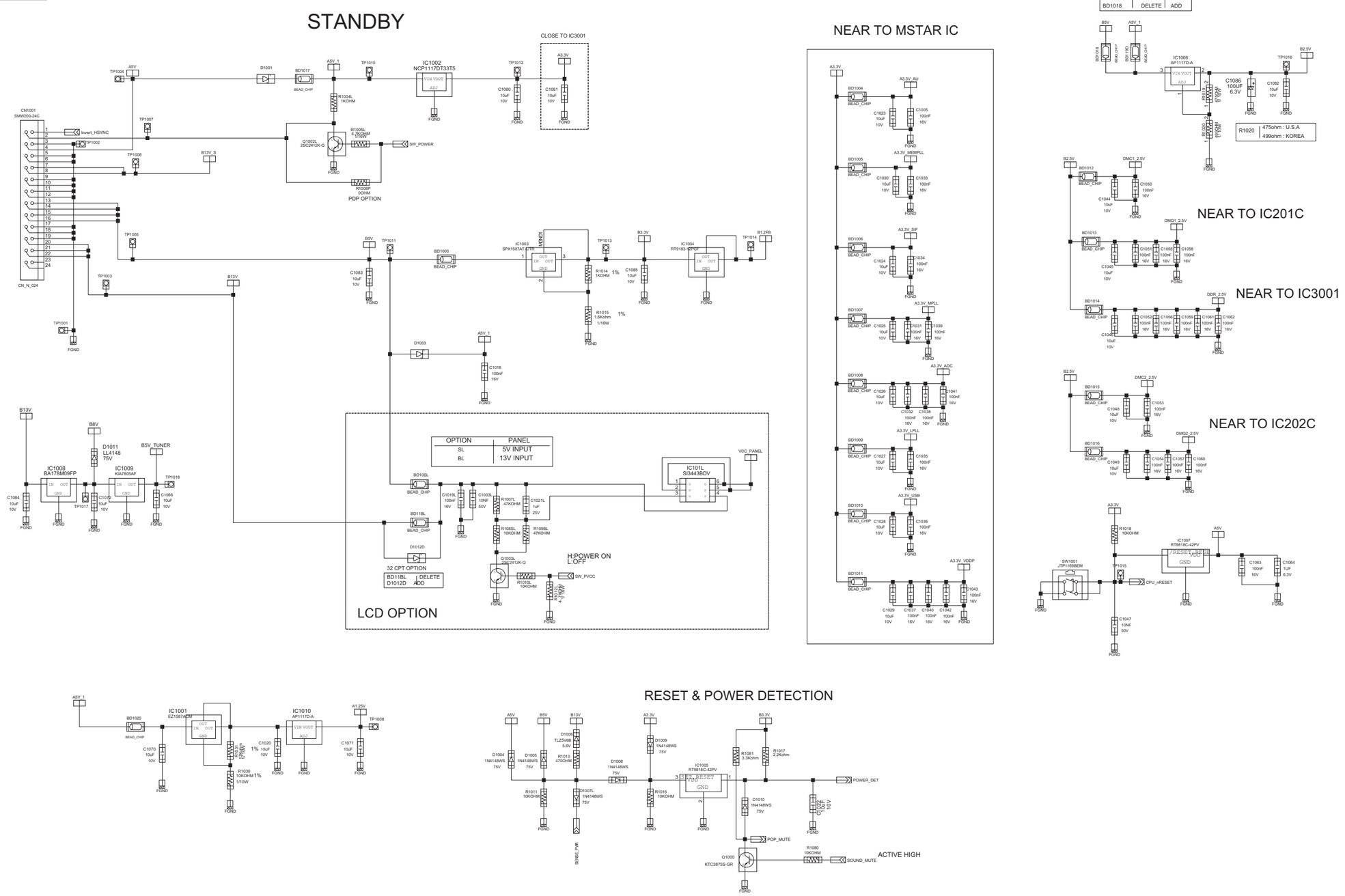
Power



7-2-2 MEMORY & CONTROL

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Power

FUNCTION KEY

jade_normal 3 10

NEAR TO IC3001

MSTAR DEBUG

FBE JIG

I2C ADDR : 0X70

jade_normal			Unknown
			Unknown
Unknown	1.0		Unknown
Thu Dec 20 17:33:25 2007		3	10

C:/atdm/jade_normal\jade_normal.cpm

7-2-3 MSD2248L_AV_IN/OUT&DIMMING

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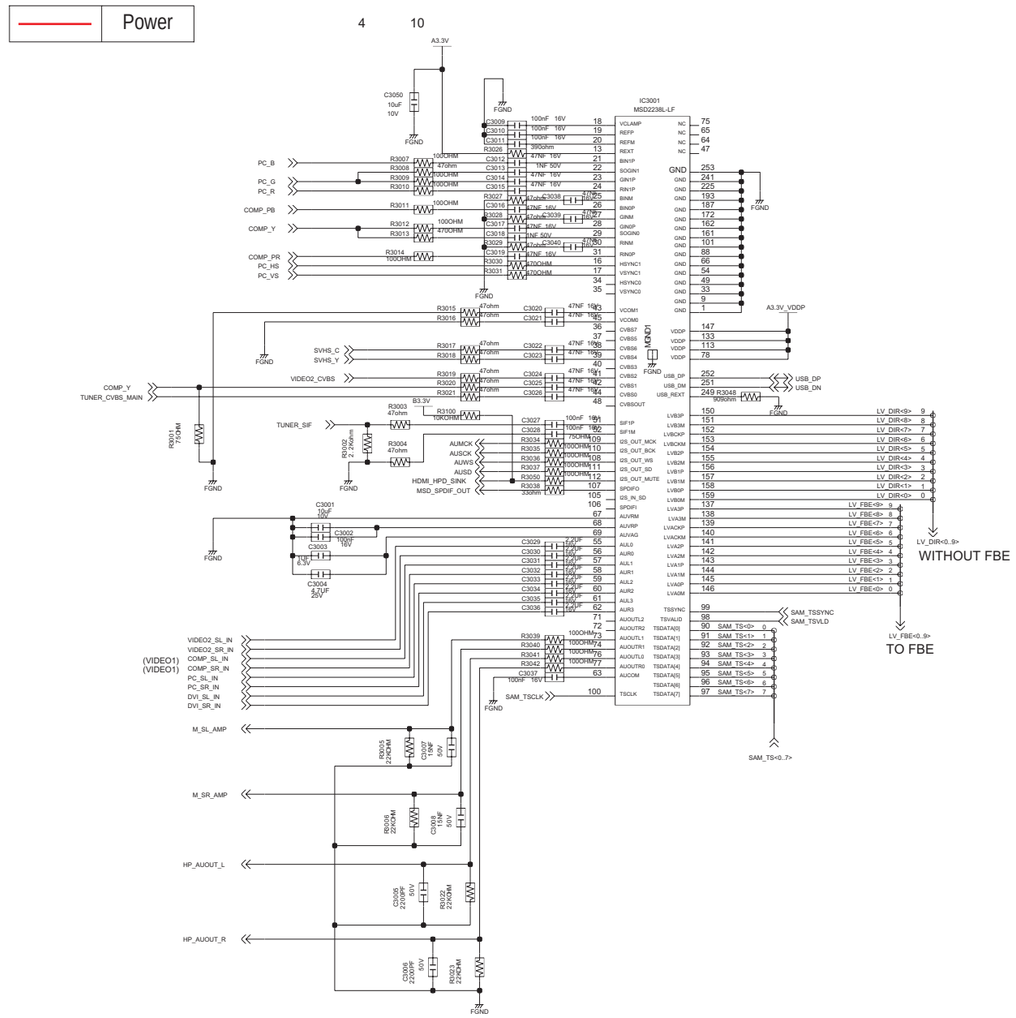
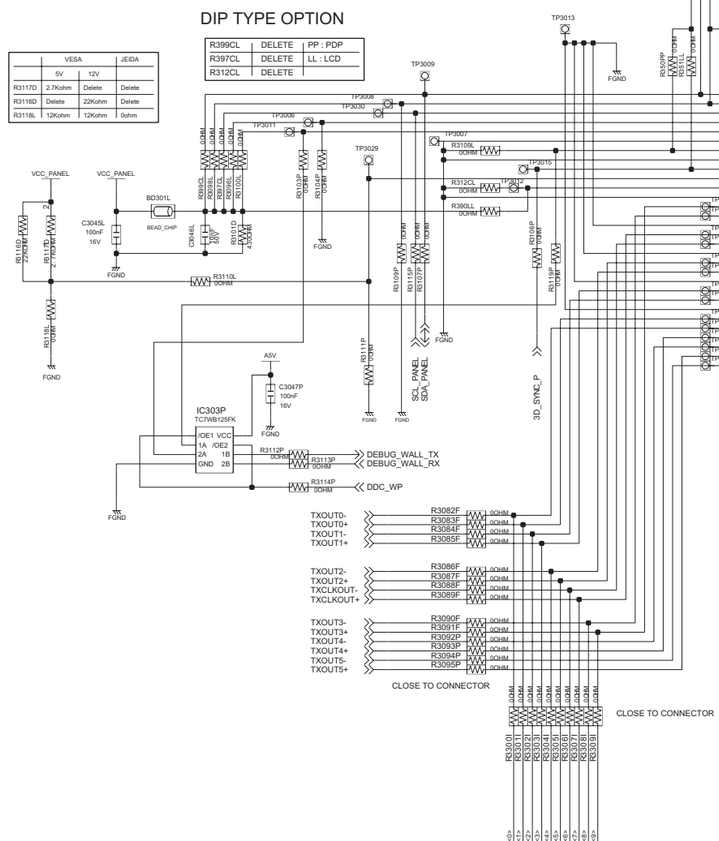
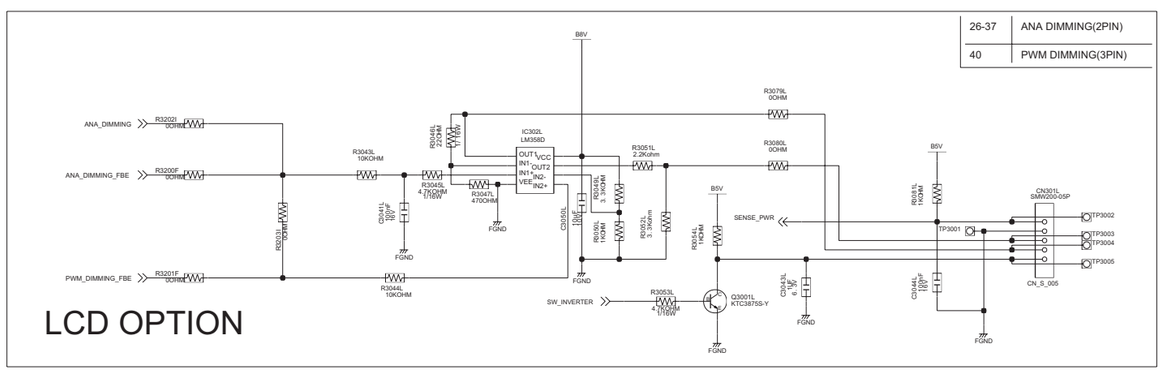
Power







7-2-4 FBE

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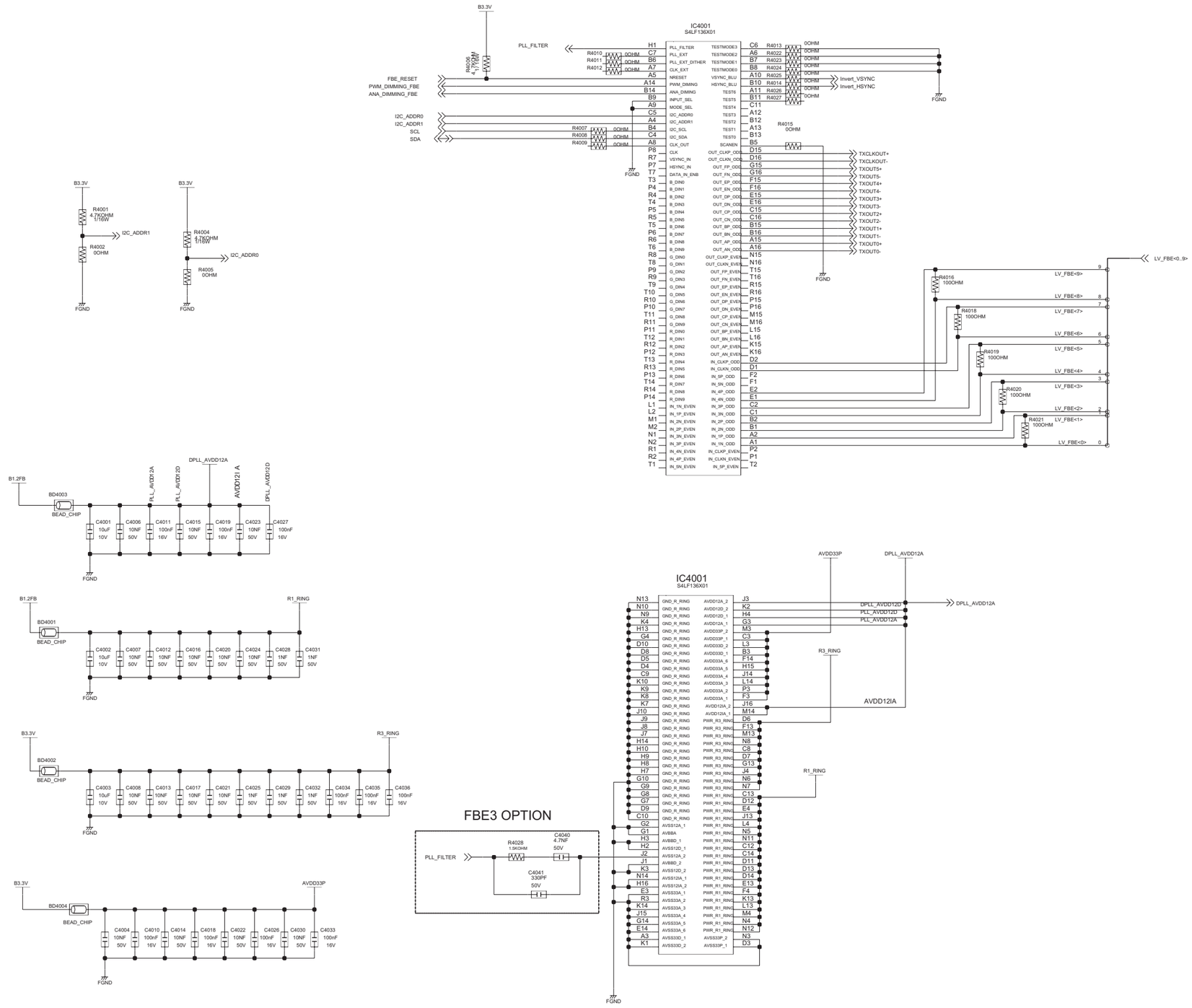
Power



7-2-5 TUNER & KS1411

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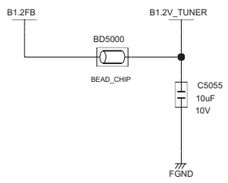
Power

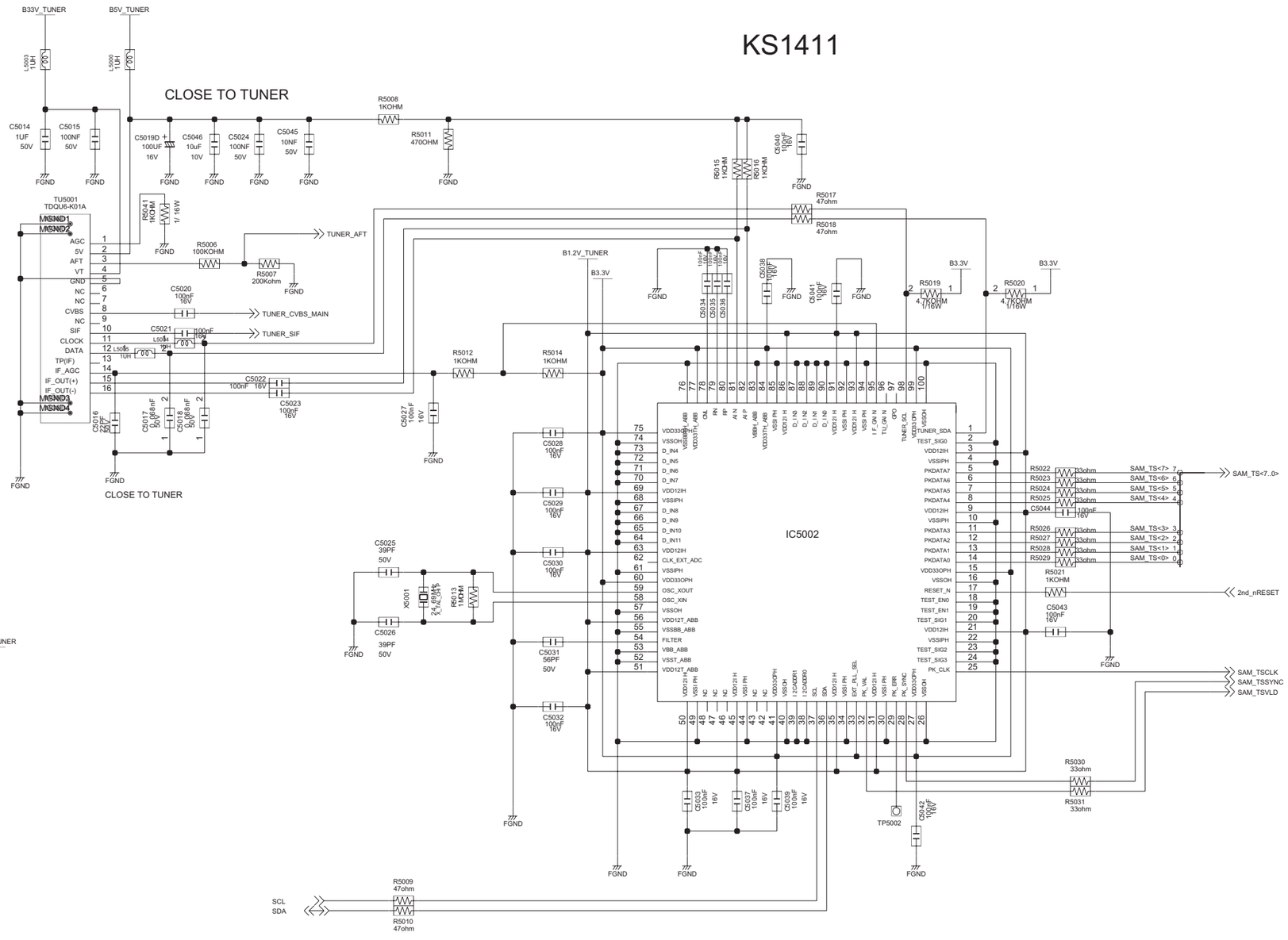
ATSC HALF NIM TUNER

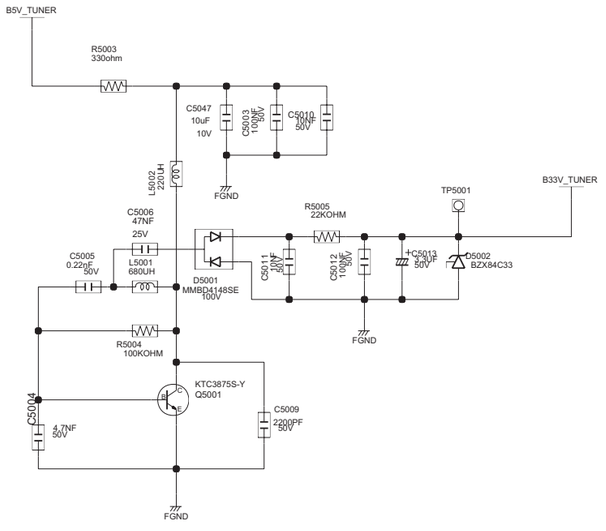
B1.2V_TUNER

B33V_TUNER

KS1411







7-2-6 EXTERNAL_INOUT/DVI SOUND/DEBUG

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Power

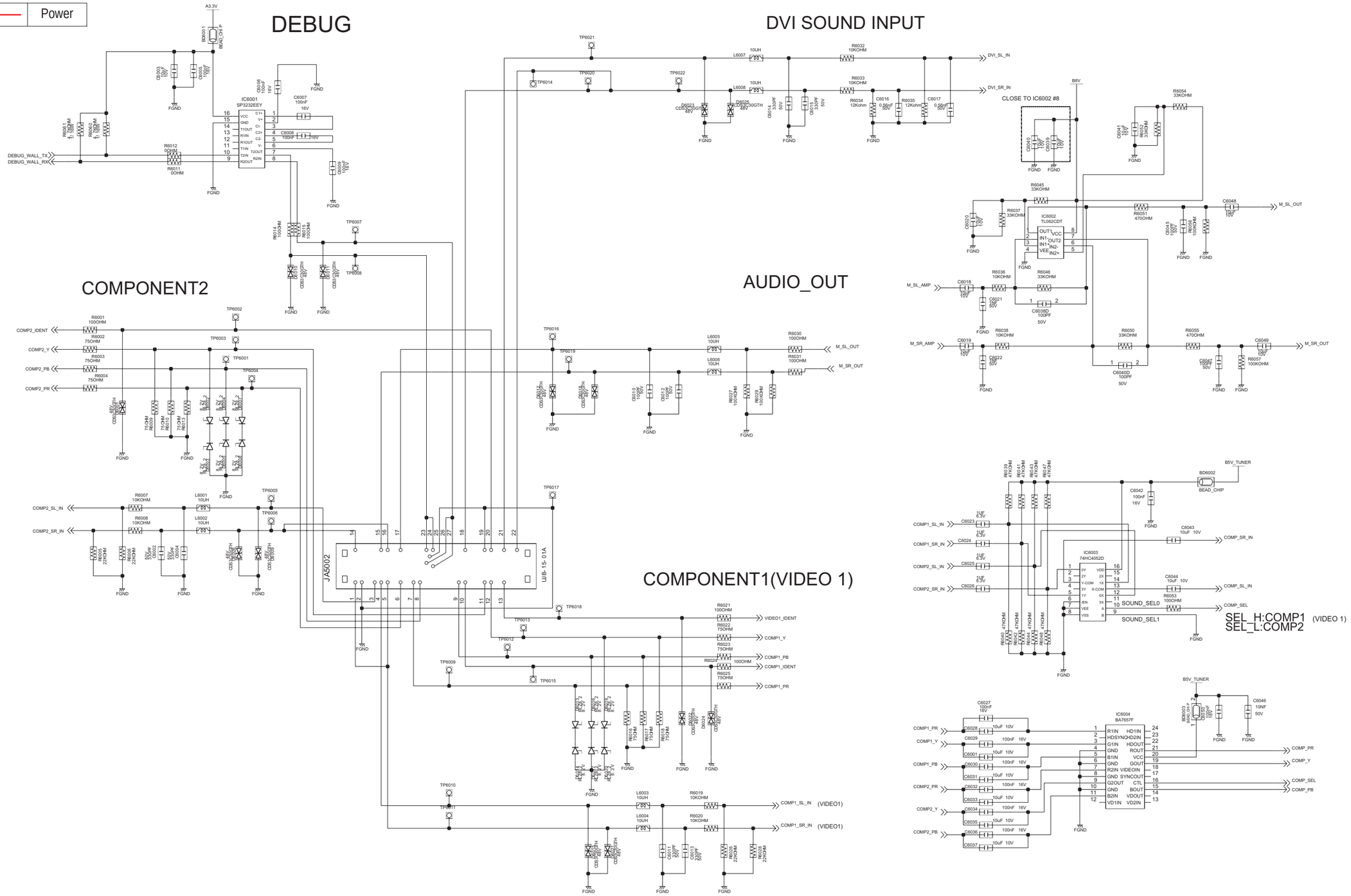
DEBUG

DVI SOUND INPUT

COMPONENT2

AUDIO_OUT

COMPONENT1(VIDEO 1)



7-2-7 HDMI/EXTERNAL_INOUT/USB

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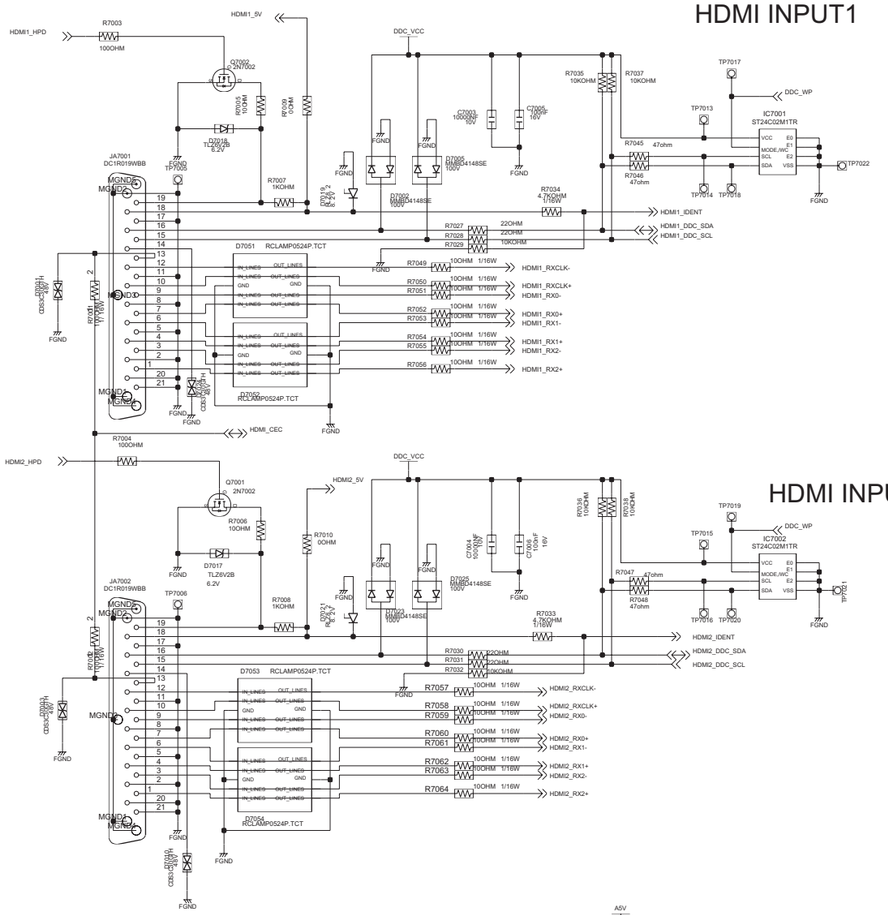
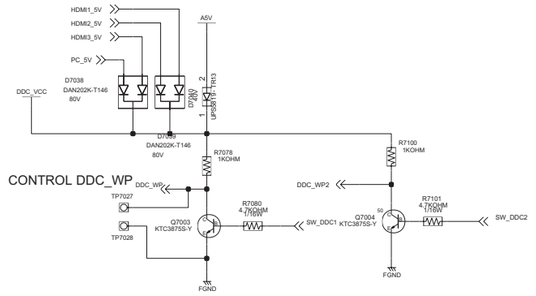
Power

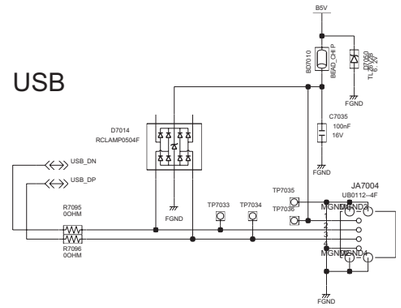
HDMI INPUT1

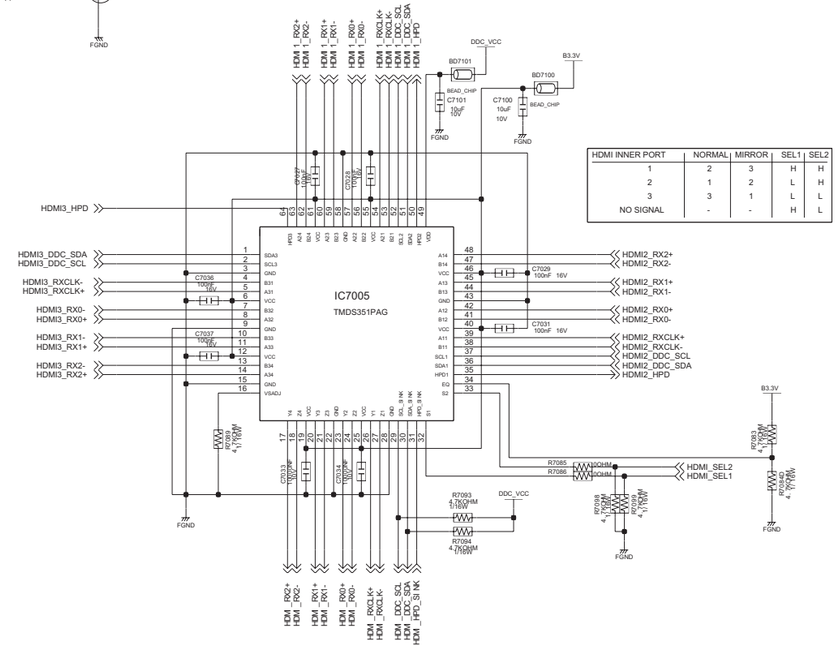


HDMI INPUT2



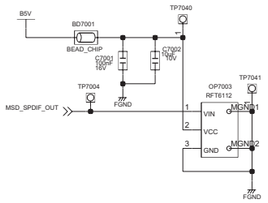
USB



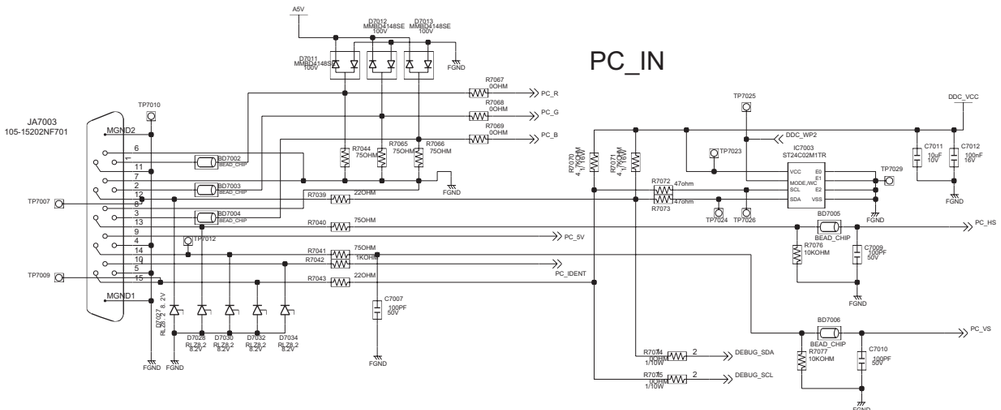


HDMI INNER PORT	NORMAL	MIRROR	SEL1	SEL2
1	2	3	H	H
2	1	2	L	H
3	3	1	L	L
NO SIGNAL	-	-	H	L

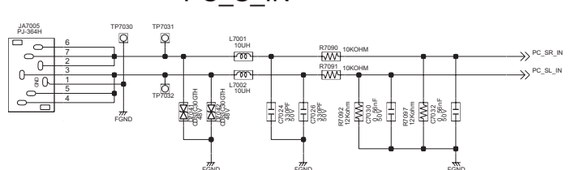
OPTICAL SPDIF OUT



PC_IN



PC_S_IN



7-2-8 SIDE_HDMI&AV IN/OUT

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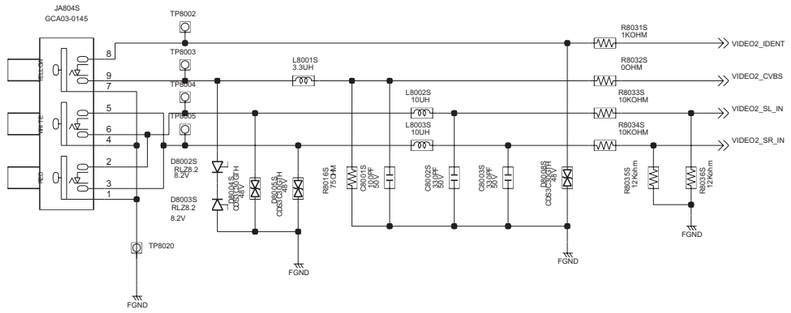
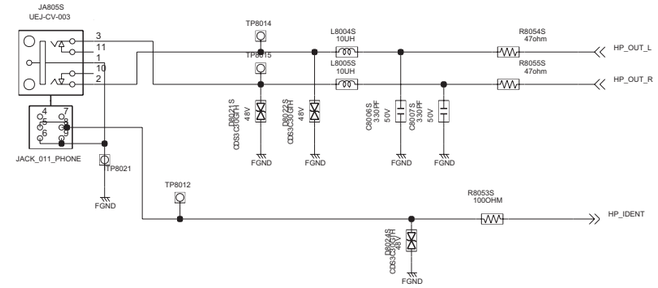
Power

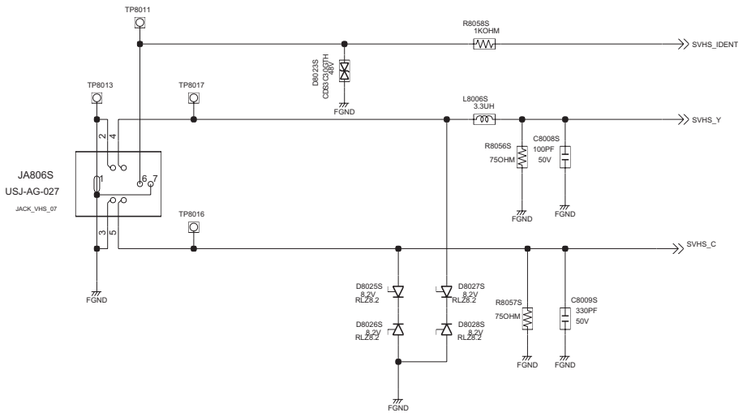
SIDE AV



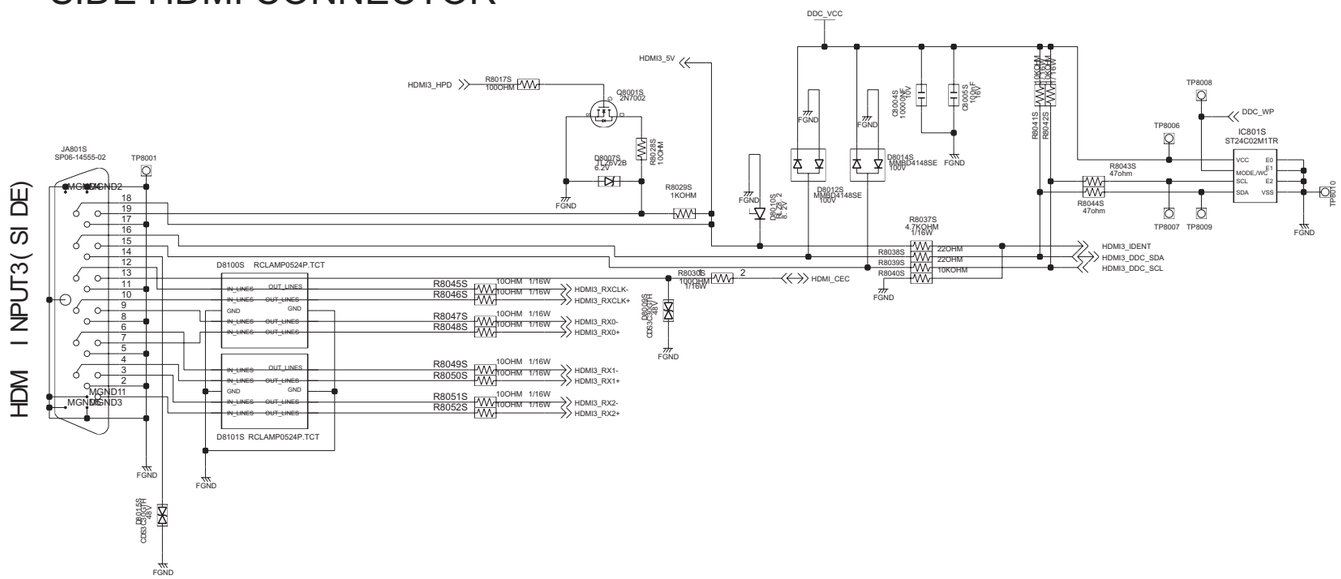
HEADPHONE JACK(SIDE)



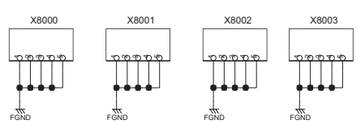
SVHS INPUT(SIDE)



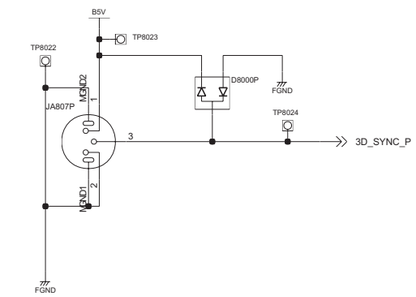
SIDE HDMI CONNECTOR



0.4T BRAKET



3D JACK



7-2-9 SOUND_AMP

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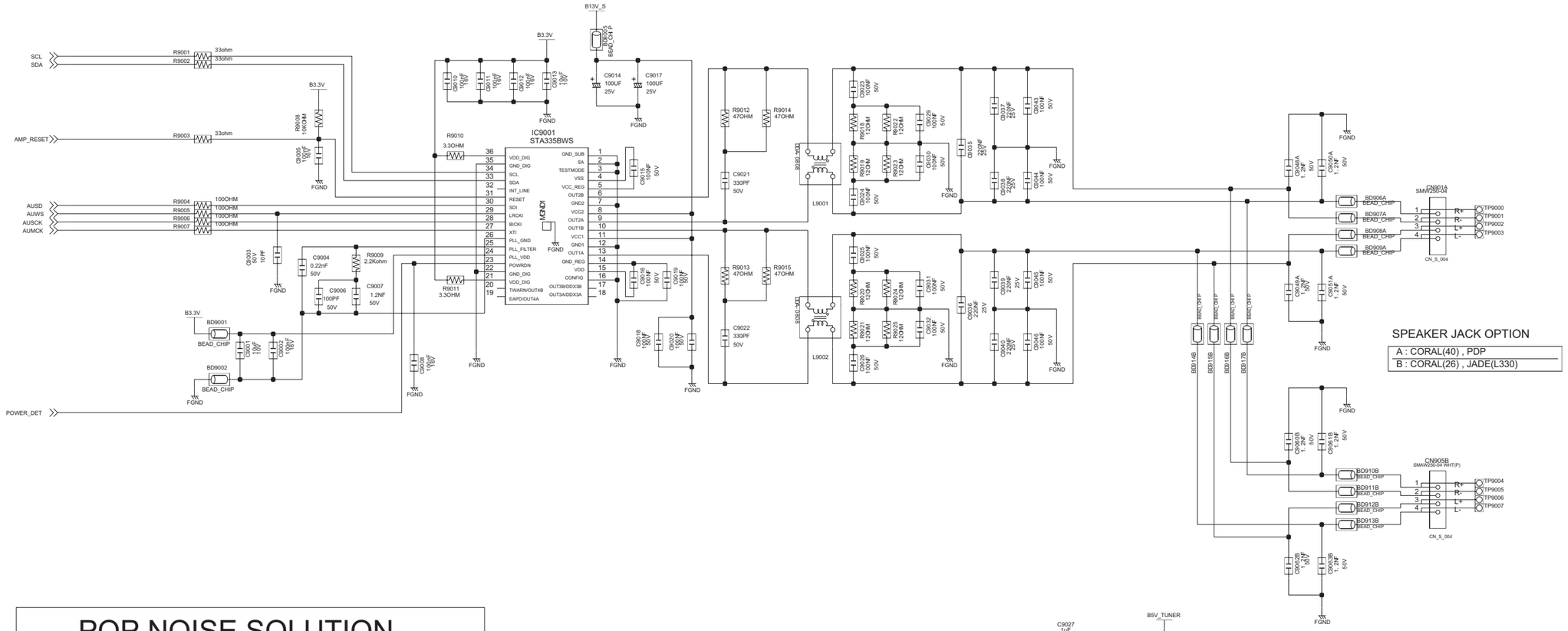
SOUND AMP



POP NOISE SOLUTION